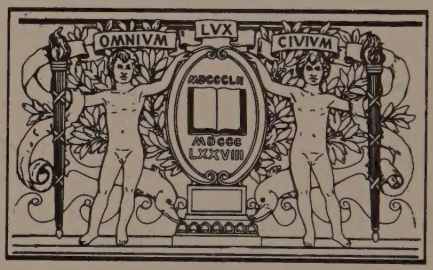

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THE PORT OF BOSTON

A STUDY AND A SOLUTION OF THE TRAFFIC AND OPERATING PROBLEMS OF BOSTON, AND ITS PLACE IN THE COMPETITION OF THE NORTH ATLANTIC SEAPORTS

By
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To My Friend
Joseph French Johnson
of New York

PREFACE

This book is the outgrowth of a private report, made to the Directors of the Port of Boston, on the traffic situation in Boston. With the permission of the Directors, I have used in my book the material of that report.

It will be found that more than the traffic problem is here covered. The book deals also with a number of difficulties of Operation; that is, the arrangement for interchange of traffic between land and water carriers. Operation is closely allied to traffic. Upon the cost and smoothness of terminal operations depend the terminal charges and service which traffic can reasonably expect.

No one person can draw a complete physical or commercial plan for the future of a great seaport. This is my contribution towards such a plan, which will evolve from the meeting of many minds. I believe I have stated clearly the problems of the port and indicated the main lines that must be followed in their solution.

"The Port of Boston" is not written for Boston alone. Much attention is given throughout to the theory of port charges and operations, and the practices of other Atlantic ports are generally cited with regard to such matters as belt lines, lighterage, elevator charges and port industries. The whole discussion of the competition for export and import traffic of the American Middle West could as well appear in a book on New Orleans or Montreal.

Among the many who have aided me in my work, I must mention particularly my friend, General Hugh Bancroft, formerly Chairman of the Directors of the Port of Boston.

My report was completed in July, 1914. In August, 1914, the European War broke out and introduced into our foreign trade abnormal conditions which will disappear after the war. For example, the closure of the Dardanelles and German control of the Baltic locked up the Russian wheat supply and, in conjunction with a large American crop in 1914, led to an enormous American wheat export at high prices. In the same way there has been a temporary revival of our shipments of provisions, beef and live horses.

But when the war is over, we shall go back to substantially the conditions here portrayed, at least so far as the business of Boston is concerned. The war has caught and held in suspension the situation which I describe and this situation will be precipitated after the war.

Edwin J. Clapp.

University Heights, New York City,
Autumn, 1915.

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PART I

TRAFFIC

CHAPTER I

ON THE MEANING OF PORT DEVELOPMENT

Engineering and operating problem. One side of the work of port development consists in the building of piers for the steamship lines. One element is in facilitating the interchange of carload freight between railroad lines and terminals where water lines are berthed. These elements constitute the engineering and operating problems, which are probably not the largest part of the whole. So far as Boston is concerned, improved interchange of the sort mentioned will better in important details railroad service to and from some piers. This improved railroad service will hardly attract an additional steamship line. Nor can new lines be attracted simply by constructing fine piers for them, though they be offered the piers free of rental.

Traffic problem. Port development means, first of all, more frequent and diversified steamship services. Steamship lines serve Boston for the purpose of carrying freight and passengers to or from the port and earning money therefor. It is important to see that these lines are supplied with commodious and convenient berths and sheds where they may handle their inbound and outbound freight. It is important to perfect any faulty present methods of getting this freight between the steamers and the freight trains of Boston railroads. But the most important thing

is to discover and remove hindrances to the free flow of oversea or coastwise traffic through this gateway. A port is not the origin or destination of the bulk of traffic carried by its water lines. It is a concentration point or gateway, in severe competition with other gateways for the business of a common hinterland. What the steamship lines are interested in is the status of Boston as a concentration point. If there are discriminating factors such as inland rates or terminal charges, which prevent the flow of competitive traffic through Boston, their discovery and removal is the vital need of the port.

All ports but New York have traffic problem. This is the traffic problem of the port of Boston. No one who studies the North Atlantic seaports, from Boston to Norfolk, can miss the conclusion that all but New York have essentially a traffic problem before them. Only New York is so embarrassed by the freight that seeks its port that it is confronted with engineering and operating difficulties of the most serious nature. Its effort to accommodate on the lower West Side Manhattan waterfront all the railroads, coastwise and oversea carriers, will, if successful, demonstrate the possibility of two bodies occupying the same space at the same time. But Boston, Baltimore and Philadelphia are confronted with no such problem in physical expansion. Their effort will have to be directed towards getting business; there will be no great difficulty about accommodating it in choice locations.

Nature of seaport. A great seaport is a clearing house for the exchange of freight between inland and ocean carriers. Here the railways and inland waterways, where there are such, exchange with the coast-

wise and oversea carriers. Here the coastwise and oversea carriers exchange with each other. Here one set of coastwise lines interchanges with another; as in Boston the lines running only north of Boston exchange with those running only south. Here the "short-sea traders" in the foreign trade exchange with the long-distance oversea carriers; as the Boston lines from the Maritime Provinces exchange with the transatlantic steamers. Here the "short-sea traders" exchange with the coastwise lines; as the Boston lines from the Maritime Provinces exchange with the coastwise lines running south from this port. A great port is a focus of these lines of communication. Port development consists in increasing these lines in number and frequency, and facilitating their interchange.

Community value of a port. The community located at this focus enjoys peculiar incidental advantages. In the first place, the water carriers make in the community large outlays in connection with their terminal operations. They pay heavily for coal to Boston dealers; they pay longshoremen for handling their cargoes[1] in and out; they buy provisions, stores and dunnage from Boston merchants; they pay Boston pilots for taking them in and out, and Boston towing companies for berthing them. The actual expenditure of an oversea steamer bringing miscellaneous cargo to Boston and taking similar cargo out, varies in particular according to whether the vessel coals here or not. She may expend $4,000 per trip and she may

[1] The cost of handling cargo at Boston ranges about 40¢ per ton. On 5,000 tons inward and 5,000 tons outward, the stevedoring charges alone would be $4,000.

expend $35,000. The average is not less than $7,500.[1] In 1913, 448 vessels in the foreign trade carried cargo both in and out, expending $3,360,000. Reckoned at $3,750 each, the 102 oversea steamers that came in with cargo but went out light spent $380,000, in round numbers. This makes a total of about $3,740,000 for all oversea steamers. The more than 1,500 round trips of the boats of the regular coastwise steamer lines, including those to the Maritime Provinces, cannot have had port expenses of less than $1,000 per trip, or $1,500,000 in all. This makes $5,240,000 expended in the port simply for handling the vessels in and out, or about $17,500 per day, for foreign and coastwise vessels together.

Handling ships a large industry. Thus the business of handling ships is the equivalent, in community expenditures, of a factory employing 8,000 male hands and (reckoning three dependants to each male) supporting 32,000 people. Such an estimate can of course only be approximate, but it is certainly not too high. It indicates what a valuable industry is represented

[1] The following is a statement of the average port disbursements of the steamers of five regular lines serving Boston. The lines are purposely chosen to include all types of steamer from the small freighter to the large steamer primarily interested in the passenger trade. The average port disbursements of these steamers, for each Boston sailing, were as follows:

Average Port Disbursements per Sailing, 1913

Line	
I.	$8,019.00
II.	5,464.00
III.	9,586.00
IV.	7,139.00
V.	33,571.00

Line V coals and provisions in Boston for her round trip.

by the mere coming and going of steamers. This estimate takes no account of the sum spent by vessels docking and repairing in Boston. It does not consider the value to the community of the ships' crews and their families who are domiciled here, or the clerical forces, employed on the piers and in the local freight and passenger offices; nor does it include the taxes on real property which is owned by the lines in question, or leased and given value by steamship use. Nor does the estimate consider the hundreds of barges and sailing craft which supply Boston with coal and lumber; nor the lighters, those draymen of coarse carload freight, which are employed to tranship between the land and water carriers; nor the cartage firms, which so transfer package freight.

Warehousing and banking. Before the goods enter the ship, or after they land, they may be warehoused, as in the case of apples stored awaiting export at Boston, or wool imported from London, or Egyptian cotton from Liverpool or tea from Ceylon. The seaport banker earns commissions by financing export shipments, discounting drafts drawn on foreign buyers. Importers use bankers to remit funds for purchases abroad. Passengers purchase letters of credit for foreign travel. Immigrants use the foreign and native bankers of Boston to remit their savings to their families at home. Cargoes and ships are insured at Boston. Passengers traveling through the port spend money at hotels, shops, theaters and in visits to near-by pleasure resorts.

Railroad earnings on water freight. Apart from the steamship passengers whom the rail lines carry, the railroads earn large sums of money in freight charges on cargoes to or from water carriers. The

rail freight charges on the export and import cargo of a single transatlantic sailing amount to from $30,000 to $50,000. To manage the interchange of traffic with water carriers the railroads maintain and pay taxes on extensive terminals, which give employment to large forces for labor, clerical services and superintendence. The especial value of the import trade in furnishing freight for the otherwise empty westbound cars of Boston railroads will be referred to in another connection.

The seaport merchant. The seaport is the ideal location for the manufacturer who uses raw materials that come oversea or coastwise or who ships his product to those destinations. The seaport manufacturer's market for labor of the less skilled type is improved by the landing at the port of tens of thousands of foreigners looking for work. The merchant at the port sits at the focus of a network of communications, with all markets to draw from and all markets to ship to. The world-wide ocean services of New York, particularly its non-European lines, are responsible for the heavy concentration there of the merchandising in American exports, and for the less marked concentration of merchants dealing in imports for the whole country.

Boston the gateway of New England. The port, even if it wished, could not monopolize the whole or the greater part of the advantages of its situation on the sea. Every interior New England point with lower freight rates to Boston than to New York saves just that difference on every shipment sent or received through the Boston gateway, ocean rates being in general the same for both Boston and New York. This means increased value for all New England

nearer Boston than New York, and the larger part of New England is nearer, and cheaper, to Boston.

The western farm becomes more valuable when a distant is replaced by a near-by railway shipping point and grain elevator. The farm again increases in value when the railway arranges to extend its lines or connections and reach new markets for the farmer's grain. The parallel is obvious. New York is the far-away water shipping point. Boston is the near one. It costs less to haul to Boston than to New York. All eastern and northern New England, interested in oversea or coastwise shipments, has value and power added to it by the proximity of the Boston water terminals. Every extension of Boston's water services gives added value and opportunity for expansion to every point in the territory it serves. The thousands of immigrants discharged here are a broad stream from which the New England manufacturer may draw, before it flows west.

The port as servant of the interior. Interior New England sends or receives three tons of freight through the Boston gateway for every ton there transhipped for the port itself, and so gets three-fourths of the direct advantage of every Boston steamship service for every one-fourth that Boston retains. This indicates the true relationship between the seaport and its hinterland. The port is the servant of the interior; it represents the interior in its dealings with lands oversea and all along the domestic coast line. The port provides the smoothest mechanical and commercial apparatus for the movement of inland freight to and on the water. It calls into life new water lines and betters the service of old lines. Its merchants find new markets for inland products.

New England's dependence on long-distance transportation. Some are beginning to realize that New England has, in general, come to the point where it must stand as a united district or yield its industrial supremacy.

New England is to an exceptional degree dependent upon transportation. It does not produce food to support its people; it produces few of the raw materials that it manufactures, none of its coal for fuel; and it must find, all through the land, markets for its manufactured products. New England produces no wool, yet makes most of the woolen fabrics of the country and sells them in sheep-raising states like Ohio and Pennsylvania. New England produces no cotton, yet sells fine cotton goods in the southern mill towns. It produces no leather, yet sells boots and shoes in Texas.

In every region where these raw materials are produced, a constant effort is being made to supplant the New England manufacturers, such as is being made by the boot and shoe factories of St. Louis and the cotton mills in the southeastern states. They claim the advantage of greater nearness to the raw material, cheaper labor and fuel, cheaper rail rates and quicker rail service for distribution of their manufactures to interior markets.

Skilled labor as an asset. What holds industries in New England is its skilled labor and the skilled direction of that labor. This will continue to hold here the finer type of industries so long as low inward rates are provided for raw materials and fuel, and reasonable outward rates with quick and sure service for manufactured products. To be assured of this truth it is only necessary to look at the example of

old England. Raw materials are brought there from every country, and England supplies with finished goods most of that part of the world that does not put up a tariff wall high enough to keep its products out. It is the English workman, employer and merchant who perpetuate the so-called "artificial" concentration of manufacturing in Great Britain.

Example of England. England is enabled to do this by the network of steamship lines to all ports, lines which safeguard transportation rates and service to and from markets. The persistent pressure which England applied to have its ships passing through the Panama Canal put on the same basis as even the American vessels in the coastwise trade, is a good illustration of the emphasis which that country puts upon the protection of its water lines of communication. These New England states are so situated that they are not dependent upon water transportation alone; they have a continent of protected markets reached by railroads. But it will be disastrous to neglect to take advantage of a situation on the sea, to increase the range of New England's transportation services there.

Responsibility of seaboard location. The necessity for this, with respect to coastwise lines, can be simply illustrated. Draw a circle of 500 miles radius around a seaport and a circle of the same size around an inland city. Each area so enclosed represents relatively the area tributary to each center. Half of the seaport's zone of influence is barren water; the consuming land area which can be reached by 500-mile railroad rates is only half as large as that of the inland competitor. But so cheap is long-distance water transportation that the seaport, expending in

water rates the equivalent of the 500-mile railroad rate, reaches a great number of domestic ports along the seaboard and, by transhipment at these ports, a wide strip of territory all up and down the coast. The extension of this tributary coastwise strip far beyond the 500-mile zone compensates the seaport for its loss in being half surrounded by water. It makes its land area, reached by the 500-mile rail rate or its water rate equivalent, greater than that of the inland competitor.[1] The extent to which these coastwise water services are used to turn a seaboard situation into an advantage, measures the degree to which a seaport realizes its opportunities, so far as domestic trade is concerned.

Need of foreign markets. With regard to foreign trade, the competitor in the interior of the country is penalized by the exact amount of his freight charges to the seaboard, and by the time it takes his goods to get there. The seaport and its neighborhood have an inherent advantage of rates and service in trade with overseas. American agricultural exports, except for cotton, are fast vanishing. The American balance of trade is going to be maintained by exports of the products of industry, from industrial districts. New England, at the seaboard, is well situated for manufacture for the foreign trade. It needs above all else carriers to the export markets and needs them at its own water shipping point, Boston, rather than at a more distant one.

Railroad lines finished. Water lines still to be built. Except for branch lines and for railroads in the state

[1] An instance of the manner in which water lines annihilate distance is the fact that water-and-rail rates to Atlanta are the same from Philadelphia, New York and Boston.

of Maine, New England railroad building is nearly finished. The main lines of the railroad net in this country are laid; only the mesh work will be filled in. New England, situated at the eastern extremity of the United States, is of all industrial districts farthest away from the present center of population and consumption in the Middle West, and from the rapidly developing markets in the South, Southwest and West. To reach these regions by rail, cars must traverse the most congested transportation area in the country: New England, the Middle Atlantic and Middle Western states. Rates cannot be low for such service, nor transportation always rapid and sure. Consider railroad centers like Philadelphia, New York, Montreal, Buffalo, Pittsburgh, Cleveland, Chicago, St. Louis. For the local manufacturers they are shipping points and mean expedition. For New England freight they are intermediate terminals, or "gateways," and mean frequent delay.

What coastwise lines do for New England. Coastwise lines offer relief. The Merchants & Miners Transportation Company ferries New England goods, at a reduced rate, past the congested area to Baltimore, for transhipment to the main line of the Baltimore & Ohio; to Norfolk and Newport News, for transhipment to the main lines of the Chesapeake & Ohio, the Norfolk & Western, the Atlantic Coast Line, the Southern, the Seaboard Air Line and the Norfolk & Southern. In the same way the Ocean Steamship Company of Savannah and the Clyde Line ferry New England goods to the railroads terminating at Savannah, Charleston and Jacksonville, for delivery all through the Southeast.

New coastwise services. A new line to Galveston,

should one become necessary, would avoid the whole congestion and ferry freight down to the gateway of the Southwest and the rail lines that radiate therefrom. A new line to the Pacific Coast will be like a New England transcontinental and will give rates and service which no transcontinental could meet. The Middle West has been displacing New England manufactures in the Southwest and on the Pacific Coast, less because of its lower rates to these sections than because of its quicker, more dependable rail service; because of the delays suffered in getting cars through the congested terminals of that same Middle West, after getting them beyond the New England gateways. If New England's natural situation is properly utilized, its freight can be floated past congestion, to the heart of the markets sought, and at the low rates of water transportation.

New foreign lines needed. So much for water connections with domestic markets. The building of foreign lines has just begun. Vital needs for New England are direct lines to Antwerp, Rotterdam and Bremen, a line to Havre, more frequent services to the Mediterranean, lines to the east and west coast of South America, to South Africa, to Australia, to India, to the Far East. The limitations and difficulties to be overcome before these lines are built cannot be briefly or simply summarized. They are the main subject of this report.

Port authorities are builders of water lines. This, then, is the business of developing the port of Boston: it means the building of water lines for New England. It means facilitating at Boston the physical interchange with connecting carriers which will make the desired lines practical. It means the removal of

barriers to this free interchange, interposed by unjust rates and practices. It means active co-operation with the desired lines in getting business to make their ships profitable. The authorities of the port of Boston are to attract, encourage, engage and aid the builders of these new transportation routes. The large stake played for is industrial and commercial expansion and supremacy. When won, it will be found divided and diffused through all this section of the country. New England's future lies largely on the free level highways which nature has built to its doors.

Need of co-operation of New England railroads. In any plans for the development of the port of Boston, one fact must be constantly held in mind. The Boston railroads have done more than any other factor to make this port what it is. They are the physical agents which concentrate here that transhipment of freight between inland and ocean carriers, which is the essence of the port. The interest and co-operation of New England railroads must be enlisted in any further attempt to better the water services of Boston. That means, it must be made worth while for the roads to aid in this attempt. They must be given credit for what they have done and are doing. They should not be called upon to make sacrifices in their carrying or terminal revenues except to correct real—not theoretical—discriminations against the port in its struggle for competitive traffic.

A

THE TERMINAL PROBLEM

CHAPTER II

ORIGIN OF THE PRESENT SITUATION IN TERMINAL CHARGES

Boston's near-by territory. The essence of a great seaport is the number and frequency of its water connections, particularly its oversea lines. The traffic that feeds these lines consists of exports and imports for an extensive hinterland; the port is merely a gate through which this traffic passes. Greater Boston has a population of 1,500,000; within 50 miles dwell and work 3,000,000 people, more than the population of either Norway or Denmark. Southeastern New England is an industrial region; it uses great quantities of imported raw materials and produces a greater value of manufactures for export than any other equal area of the country, with the exception of the New York industrial district. The 3,000,000 people who live here have the money and taste for ocean travel. The industries demand a constant influx of immigrants from abroad.

The West must be drawn on. Even if Boston could count on all the export and import traffic and passenger travel of this local hinterland, or even of all New England, it would not be a first-class port. For one thing, its exports, though high in value, are small in bulk and do not fill the ships which have brought here the imports for New England industries. To fill these ships are needed the grain and grain products, pro-

visions, tobacco, cotton and agricultural implements of the West, the South and Canada. This is no longer territory local to Boston. Its exports and imports are keenly competed for by the ocean and rail lines meeting at Montreal, Halifax, St. John, Portland, Boston, New York, Philadelphia, Baltimore, Norfolk and Newport News, New Orleans, Galveston. The success with which Boston can meet the competition in this wide field, and obtain its fair share of this competitive traffic, will determine its future growth.

Seaboard competition for the West. The old idea of a seaport was that it was simply a harbor. That was largely true of the days before there were railroads. The only lines of communication were by water; most of the civilized population lived on the coast. The seaport was an entrepôt, where long-distance water carriers interchanged with coastwise vessels. With the invention of the railroad and the opening up of continents, this transhipment business became insignificant compared with the through shipments to and from the interior, for which the various seaports were only competing gateways. This competition of ocean gateways is best exemplified by two groups of ports: Northwest European ports from Antwerp to Hamburg inclusive, which are competing for the oversea trade of western Germany; and the American North Atlantic ports from Montreal to Norfolk inclusive, which are competing for the oversea trade of the American interior.

"Natural" conditions determined the location of these American ports, and to a certain degree influence their competition still. But being merely rival foci where traffic is concentrated or distributed by inland

carriers, they are rather commercial than natural phenomena today.

Boston's "natural" advantages. Ocean distances. Boston, as a member of this American North Atlantic group, has strong natural advantages. In the first place, it is nearer European ports than its principal rivals. The distances from these rival ports to Liverpool are shown in the following table. Boston has a similar advantage with respect to ocean mileage to other European ports.

OCEAN DISTANCES

	Distance to Liverpool (nautical miles)	Boston's advantage (nautical miles)
Boston	2,862	—
Montreal	2,972	110
New York	3,056	194
Philadelphia	3,199	337
Baltimore	3,355	493

The result of this situation is that the operating expenses of an ocean trip to and from Boston are less than to and from any of the other ports. With the operating expenses necessary to make 14 runs to or from New York, 15 runs could be made to or from Boston. With five ordinary freight steamers a weekly service could be maintained between Boston and Liverpool; it would take six to maintain a weekly service between Liverpool and Baltimore. The shorter ocean trip from Boston can safely be counted on to attract steamship travelers.

The harbor. Boston's harbor is close to the open sea. Boston Light is only an hour from the steamship

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piers. This compares with two hours from the New York piers to Sandy Hook. Boston's advantage is far more striking compared with Philadelphia, 90 miles up the Delaware River; Baltimore, a day's sail up Chesapeake Bay; and Montreal, 1,000 miles up the St. Lawrence. This element of nearness to the sea offers the steamship companies greater safety and expedition in their voyages. In spite of being almost on the open sea, all of Boston harbor is perfectly protected by the islands of the lower bay, so disposed as to form natural breakwaters.

Channel. From the sea the Government has practically completed a channel of 35 feet depth at low water, with a minimum width of 1,200 feet. This compares with a 40-foot channel at New York, and a 30-foot channel at Baltimore, Philadelphia, Portland and Montreal. This means that larger vessels can be employed in the Boston trade[1] and, as is well known, the economy of transportation increases with the size of the carrying unit.

Port equipment. Once a ship is in Boston harbor, it finds all facilities for handling and sheltering its cargo, inbound and outbound. There are large covered piers with railroad tracks on them so that cars can come alongside the vessel. The port is overstocked with warehouses of every type. They are conveniently located with respect to oversea terminals and their rates are kept low by reason of their competition. In Boston are grain elevators of modern construction, with a total capacity of 2,500,000 bushels. The charges

[1] This advantage of Boston's is partially neutralized by the extreme care that must be exercised in navigating the rock-bottomed channel here. In Baltimore, for example, the channel is soft-bottomed.

for their use are low compared with those in force at other ports.

New England and Canada as Boston territory. In addition to the supposedly "local" 3,000,000 population, tributary to Boston, it is the "natural" port for most of the rest of New England. It is the rational port of overflow for the surplus of Canadian grain and grain products which Montreal cannot wholly handle in the summer, and which the Canadian winter ports of Halifax, St. John and Portland can still less handle when the St. Lawrence is frozen. Boston has counted on getting this overflow because the Canadian roads haul their export freight further, and earn more on it, when they send it to Boston for export, than when they hand it over earlier to the carriers running to New York and ports further south.

Natural advantages not sufficient. The "natural" conditions for the creation of a great seaport seem to be present. If only natural conditions needed to be considered, such statements could be relied upon to interest new steamship lines; the experience of such advantages would be sufficient to induce present lines to expand their services. If this is not occurring to the degree expected, then it is apparent that there are, under the surface, influences at work which diminish the volume of traffic which might be expected to concentrate at Boston, and which spoil the earnings promised to steamship lines by this advantageous location.

Other ports in Boston's territory. Any one who studies the situation finds that Boston's pier accommodations care for all shipping seeking them. Boston's warehouses are not kept filled. Much of the capacity of its grain elevators stands continually

empty. Southeastern New England imports considerably, and exports still more largely, via New York. The passenger list of every large liner out of New York contains scores of travelers from Boston itself. Canadian exports, grain and grain products, are overflowing more and more through Buffalo to New York, Baltimore and Philadelphia. With western exports the case is worse. Every two weeks a Red Star liner from Antwerp, after discharging in Boston imports for distribution in New England, sails 300 miles further to Philadelphia to load exports from the West and grain from Buffalo. Every two weeks a Holland-American liner from Rotterdam does the same thing. Differential rail rates afforded to Philadelphia and Baltimore so affect ocean rates as to neutralize the advantage of Boston's nearness to Europe. There is a wide spread between the volume of traffic that might geographically be expected to move via Boston, and the volume that actually so moves.

Natural conditions not controlling. The determining factor is not nearness to European ports, but inland rates, speed and frequency of railroad service from the interior to the seaboard, inter-railroad alliances and feuds, the relative strength and zeal of soliciting forces in the interior, deep-rooted prejudices on the part of shippers, rates of ocean carriers, relative frequency of ocean service, coastwise services feeding ocean lines, and other such factors. Passenger traffic seeking a port requires speedier, more frequent ocean service than freight traffic alone, and this improved ocean service attracts more high-class freight. Certain charges and practices at the seaboard, on the part of rail carriers, have an influence on traffic moving via the port they serve. Such matters are more intangible

than geographical location and lie beneath the surface of things.

No suppression of port by Boston railroads. There is a somewhat general impression that Boston's difficulties lie chiefly in the fact that its steamship piers are not owned by the public but by the railroads, and that the railroads, by their switching charges and other terminal practices, are hampering the development of the port. This is not true. The port of Boston has been built up largely by the Boston & Maine and Boston & Albany roads. In a port whose oversea lines have been fostered as extensions of its rail carriers, traffic conditions must be expected to reflect that situation. Many of the supposed disadvantages to Boston from the close and exclusive relations between its individual rail and ocean lines prove upon examination to be chimerical or theoretical. A few are real and can be remedied.

New York's early predominance. The first thing to do is to have in mind how Boston came to grow up as a railroad port. In that respect it is not different from Philadelphia and Baltimore, Norfolk and Newport News, Portland and St. John.

There are two sorts of seaport along the Atlantic Coast: New York and all others. Traffic has naturally sought New York ever since the completion of the Erie Canal, which established it as the port of the country back of the Alleghanies for decades before railroads were built into that territory from the seaboard. Even when the railroads were built, they did not break New York's predominance; they rather had to accommodate themselves to it and reach New York themselves. Today all trunk lines enter New York;

each other port must be content with one or two or three.

Norfolk is served by the Norfolk & Western, Newport News by the Chesapeake & Ohio. Both the Norfolk & Western and the Chesapeake & Ohio enter New York by means of the Old Dominion Steamboat Company, in which they are part owners.

Baltimore is the home port of the Baltimore & Ohio, but is also served by the Pennsylvania and by the Western Maryland, now part of the New York Central system. The Baltimore & Ohio runs on to Philadelphia, and continues to New York over the Reading and Jersey Central.

Philadelphia is the home port of the Pennsylvania; Philadelphia is also served by the Baltimore & Ohio and by the Reading, which, by its many western connections, has become a through route of importance in the last ten years. The Pennsylvania reaches New York over its own rails, the Reading over a subsidiary line, the Jersey Central.

All roads led to New York. New York, besides being served by the home roads of its competitors, has three through routes of its own to Chicago: the Erie and the two lines of the New York Central. In addition, New York has two strong roads to Buffalo, the Delaware, Lackawanna & Western, and the Lehigh Valley. In Buffalo they connect with the numerous lines from there to the West, such as the Grank Trunk, the Wabash and the Michigan Central. Boston has no lines west of the Hudson River. It has been dependent upon western traffic handed over to it at New York, Campbell Hall, Albany, Rotterdam Junction, Mechanicsville, Chatham, Bellows Falls, White

River Junction and Newport, Vt.[1]—dependent upon traffic there handed over to Boston lines by carriers whose first interest was to take it to their home ports.

Efforts of railroads to build up their ports. This concentration of trunk lines at New York and the competition ensuing between them tended to perpetuate in New York a monopoly of the western export trade, inaugurated by the Erie Canal. The railroads at other ports have had to make extraordinary efforts to establish European steamship lines and so to have an opportunity to haul export and import traffic for the interior. In some cases the railroad line established steamship services of its own, not being successful in inducing independent carriers to come in.

For example, the present Johnston Line, Baltimore-Liverpool, was originally a Baltimore & Ohio Railroad line. The Canadian Pacific Railroad in 1903 bought 15 steamers from Elder Dempster and laid the foundations for what is now one of the largest steamship companies in the world. Sometimes the "outport"[2] railroad line participated in the cost of steamers built for the new service, or guaranteed a minimum cargo for the sailings proposed, or made an exclusive contract with the steamship line to give it all cargo collectible for the foreign port served. Sometimes there was merely an understanding that railroad and steamship line were to work together for their mutual interests. In all cases the steamship line was supplied with a pier free of charge, while in New York it would have to pay from $50,000 to $80,000 per year for the same sort of accommodation.

Steamship lines brought to Boston. This last type

[1] See Map II, following text.

[2] All ports but New York are called "outports."

of contract, free piers and a general agreement to work for each other's interest, is the type under which the Boston railroads attracted steamship lines to Boston. That is what built up this port. There was nobody except the railroad companies who stood ready to supply free piers, for no one else could have the compensation they had for so doing; namely, the rail haul on import and export freight of lines so brought to Boston. No one else could promise the steamship companies cargo such as the railroads were able to concentrate here. The railroad's control over a certain volume of cargo sometimes compelled a steamship line to give a Boston service, lest the railroad offer that cargo to a competitor.

Mr. Gottheil, of Funch, Edye & Company, testified in the recent (1913) Hearings on the So-called Shipping Trust, before the House Committee on Merchant Marine and Fisheries, Vol. 1, pp. 367, 368:

> The situation at present is that all along the coast the railroads do what they can to develop the port to which they are running. I think that the railroads have forced more than one steamship company to give them a service, though perhaps the conditions did not really warrant it. I know that the Boston roads have forced the steamship companies to go into Boston and take rates which they can just as well get at New York.

Contracts. There is much similarity in the various contracts between Boston railroads and steamship lines. The Boston & Albany-Cunard contract states:

> It is desired that relations in the nature of a close traffic alliance shall be maintained between the steamship company and the railroad company.

The steamship company generally obligates itself to discharge and take all cargo at the railroad's pier and nowhere else. In contracting for export freight from inland the steamship company agrees to give the preference to, and use its influence in favor of, the railroad and its connections. The steamship company will deliver to the railroad, so far as lies within its power, all import freight destined to points reached by the railroad or its connections.

The usual criticism of this situation is, that instead of having all Boston railroads working for every steamship line, each line is tied up to a single road and its connections. The contract serves notice upon other rail carriers that the steamship line is, in the matter of competitive traffic, a preferred connection of the single Boston road which supplies it with its pier. The advantage of the three railroad systems converging upon Boston is modified when each steamship is preferentially bound to a single one.

The exclusive relations established. The Boston railroad, having supplied a pier free to the steamship line, looks upon the line as an extension of the railroad and tries to keep for itself all possible traffic moving over that extension. This is a natural development of railroad practice. The water carrier is regarded as an industry settled on the railroad's tracks. The appropriation of the steamship line as an exclusive and favored connection expresses itself not only in provisions of the contract with the steamship company, but also in the system of switching charges applying to competitive freight, and in each railroad's practice of eliminating switching charges on New England freight moving over its own pier but not on freight moving over the piers of other railroads.

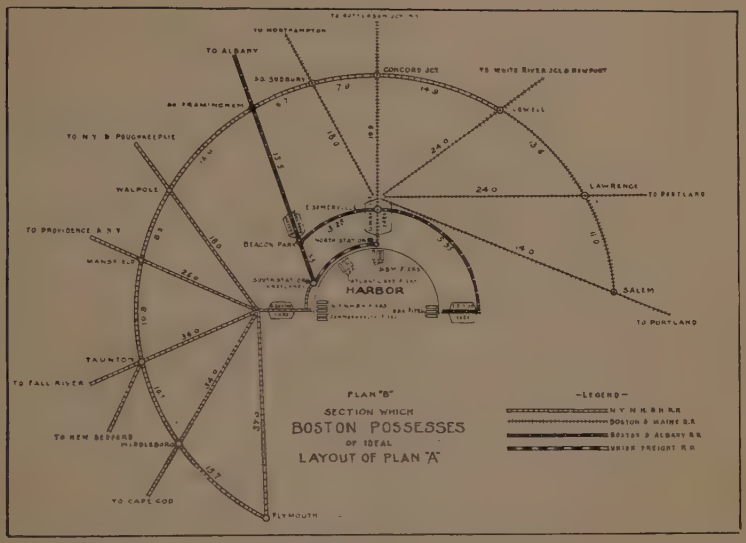
Switching charges. The terminal situation at Boston. To grasp the situation with regard to switching charges, it is necessary to glance at the physical layout of lines and terminals at Boston. Plan B, opposite, shows the main features of this layout. Plan B is a diagram, not a map, showing the entrance and terminals of each of the railroads serving Boston, and the connections existing between the lines.

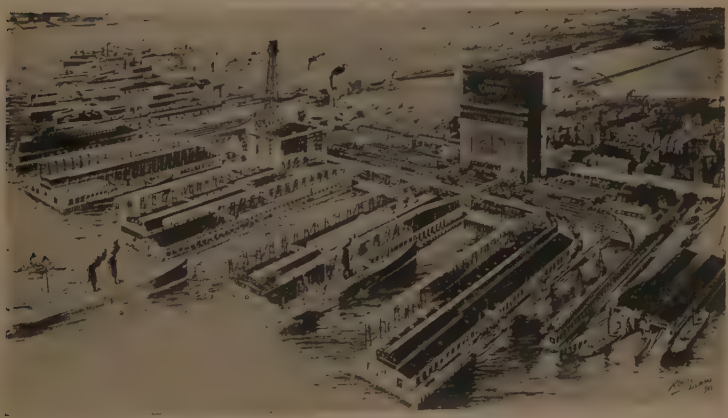
New Haven. The various divisions of the New Haven road unite before entering the South Boston terminal yard, adjacent to which are the New Haven's piers, as well as Commonwealth Pier 5 and the new Fish Pier. The two latter are now operated as part of the New Haven terminal.

Boston & Albany. The single line of the Boston & Albany branches at Beacon Park. Its oversea freight is carried around the city by the Grand Junction Railroad, owned by the Boston & Albany, to the East Boston yards and piers of the railroad.

Boston & Maine. The various divisions of the Boston & Maine unite at the main yard at East Somerville, from which can be reached the two groups of Charlestown piers of the Boston & Maine, known as Hoosac and Mystic Docks. The three sets of piers mentioned (at East Boston, Charlestown and South Boston) are where the ocean-going steamers of the port have long been handled.

Boston & Maine and Boston & Albany well coordinated. It is observed that the Grand Junction Railroad, by cutting the Boston & Maine yards at East Somerville, provides adequately for interchange of export and import traffic between Boston & Maine and Boston & Albany. At Somerville the Boston & Albany freight trains serving East Boston drop





EXPORT TERMINALS AT EAST BOSTON

Boston & Albany traffic destined for Boston & Maine piers and pick up Boston & Maine traffic destined for Boston & Albany piers.

New Haven not well co-ordinated with other systems. The defect in the physical situation is that the New Haven system is not well co-ordinated with the others. It is not easy, within the port, to get traffic between New Haven rails and Charlestown or East Boston piers, or between South Boston piers and Boston & Albany or Boston & Maine rails. A small volume of such traffic can be interchanged. The New Haven and Boston & Albany can interchange by switching cars across the South Station passenger yard at night. The New Haven and Boston & Maine can interchange by utilizing the night switch across the South Station yard plus the night service of the Union Freight Railroad, which runs from South Station to a connection with the Boston & Maine near North Station. Some traffic is so moved between the New Haven and the other roads. But the larger part of this movement is detoured via an outer line of the New Haven (see Plan B), being exchanged with the Boston & Albany at South Framingham and with the Boston & Maine at Concord Junction or Lowell. A considerable movement between New Haven rails and East Boston piers is even exchanged with the Boston & Albany at Worcester. These detours entail a large additional mileage.

What the flat Boston rate covers. It is important to remember what the Boston rate (the published tariff to or from Boston) covers, and what switching charges mean. For the rate to Boston, no matter from where, a railroad delivers to its own public terminals. For that rate it unloads and delivers less-

than-carloads lots (L.C.L.) at its freight houses. Carload (C.L.) freight it delivers, for the Boston rate, on its public team tracks or to an industry with a siding off the railroad's line. Local carload freight must usually be unloaded by the consignee. Carload freight for export the railroad both delivers and unloads upon any of its piers, which are considered as parts of its public terminal. Similar treatment is given import freight handled over a pier belonging to the inland rail carrier.

What a switching charge is. But if one carrier brings cars of freight to move over the piers belonging to another road, the latter naturally makes a charge for delivering to its pier the cars in question and there unloading their contents. This is a switching charge, so much per 100 pounds of freight, paid by the carrying road to the terminal road. This switching charge is, according to circumstances, added to the rail rate and paid by the shipper, or is "absorbed" by the carrying road, the shipper paying merely the flat Boston rate and the carrying road earning on the shipment this rate minus the switching charge paid its rival railroad pier owner.

"Local" traffic. From Boston & Maine points to Charlestown or East Boston piers. If an export shipment originates in Concord, it must come to Boston over the Boston & Maine. Concord is a "local,"[1] not a "competitive" point on the Boston & Maine. The Boston rate of say 10¢ per 100 pounds delivers a car of freight to a steamship line at a Boston & Maine pier, part of the railroad's Boston terminal. If the car is for export by a steamer berthed at a Boston & Albany pier at East Boston, the Boston & Maine

[1] A local point is one served by only one road.

charges the Boston rate, 10¢ per 100 pounds, for bringing the car to Boston and delivering it to the Boston & Albany at East Somerville. The Boston & Albany charges 2.5¢ per 100 pounds, minimum charge $5.00 per car, for switching the car to East Boston and there unloading its freight for the steamer. This 2.5¢ is paid by the Concord shipper. He thus puts freight on a steamer docking at the Boston & Maine for 10¢ per 100 pounds, but it costs him 12.5¢ per 100 pounds for putting the freight on a steamer docking at a Boston & Albany pier.

From Boston & Albany points to Charlestown and East Boston. Similarly, a shipment to Boston from Ludlow, a local point on the Boston & Albany, is delivered, for the Boston rate of say 10¢, to a steamer at an East Boston pier. If destined to a steamer docking at a Boston & Maine pier, the shipment pays 10¢ plus 2.5¢ charged by the Boston & Maine for taking the car from the Boston & Albany at East Somerville and delivering its contents to a steamer at one of the Charlestown piers.

South Boston piers. South Boston piers are best off. They are operated as part of the New Haven's terminal and therefore are reached at the flat Boston rate by all traffic from the New Haven's territory. The New Haven reaches nearly every point touched by the Boston & Albany. The few "local" Boston & Albany points reach the South Boston piers for the Boston rate plus 3¢ per 100 pounds switching charge levied by the New Haven for switching the car across South Station and delivering its contents on the pier. By the terms of a contract between the Port Directors and the Boston & Maine, the Boston rate from any point on the Boston & Maine includes delivery to piers

of the Commonwealth at South Boston. Some of this traffic moves over the detour route described. Much of it comes into Boston over the Boston & Maine and is delivered to the South Boston pier by the Union Freight Railroad and the New Haven jointly.[1] As the New Haven or Boston & Maine reach practically all points in New England, Commonwealth Pier, the only terminal for ocean ships at South Boston, is reached by the flat Boston rate from all points but the few Boston & Albany local points.

New Haven territory and Charlestown piers. Exports from New Haven territory destined to Charlestown piers move on through rates, not the Boston rate plus a switching charge. The movement is sometimes via the detour route, sometimes via Boston and the Union Freight. From points within the Boston zone of influence—*i.e.*, east of and including Providence and Putnam—those through rates are higher than the New Haven's rates to Boston by 4¢ per 100 pounds for the first four classes of freight, 2¢ per 100 pounds for the two lower classes. Through commodity rates, also 2¢ higher than the Boston rates, carry the bulk of this tonnage moving, such as Egyptian cotton imported and cotton waste exported.

New Haven territory and East Boston. Exports from New Haven territory destined to an East Boston pier may be carried into Boston at the Boston rate, switched across South Station and thence be delivered by the Boston & Albany to an East Boston pier for a switching charge of 3¢ per 100 pounds. But the larger volume of traffic moving, such as cotton waste or

[1] The Boston & Maine, on this business, absorbs a joint switching rate of 3¢ per 100 lbs., levied by the Union Freight and New Haven, and in addition a wharfage of 0.5¢ per 100 lbs. paid the Port Directors.

machinery for export, and Egyptian cotton imported, moves via Worcester on a through rate usually 2¢ per 100 pounds over the New Haven's flat Boston rate.

Wharfage and side-wharfage. The two other features of practice at Boston piers which need attention, are wharfage and "side wharfage." Wharfage is a charge levied by a pier owner upon merchandise which uses a covered pier. In the case of carload freight, wharfage compensation is included in the flat rate or the switching charge which moves the car to or from the pier. L.C.L. is teamed to or from the pier. If teamed between the pier and the freight station of the railroad pier owner, the owner gets a line haul on the goods and no wharfage is charged. On all other shipments teamed to or from the pier—L.C.L. for other railroads and all freight of local Boston shippers—wharfage averaging 2¢ per 100 pounds, 40¢ per ton, is levied.

Considering New England freight, the effect of this practice is to extend to L.C.L. the inequality in terminal costs which the switching charges create for C.L. An L.C.L. shipment from Concord gets aboard a Boston & Maine steamer for the Boston rate plus a teaming charge. To put it aboard an East Boston steamer would cost the Boston rate plus teaming plus 40¢ per ton wharfage. The Port Directors have adopted the wharfage charges prevalent here, and charge 40¢ per ton on all freight teamed to or from their pier.

Similarly, both the Port Directors and the railroads charge "side wharfage" on all goods handled over the ship's side, between ship and lighter, while the vessel is lying at her berth. This charge is half the regular

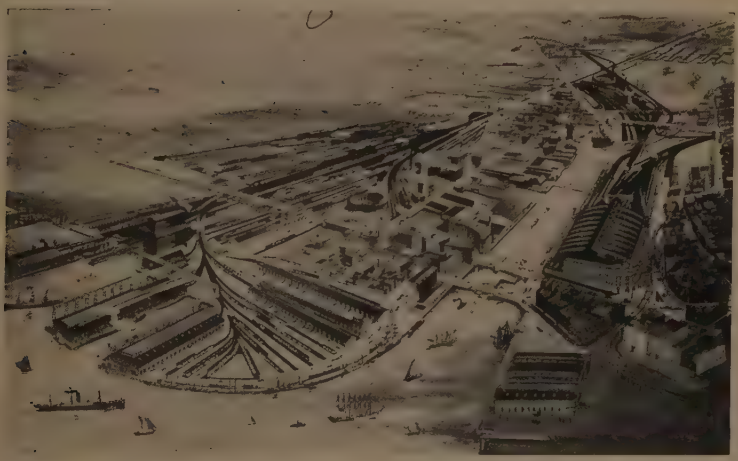
wharfage; that is, it is usually 20¢ per ton, and so is sometimes called "half wharfage."[1]

Premium which Charlestown piers have enjoyed. But the important matter is freight moved in cars to or from the pier. In the details given is seen the general principle, already stated, long in force at Boston: the Boston rate includes delivery only at the steamship pier of the inland carrier of New England freight. This explains why a location at a Charlestown pier has been the most desirable in the harbor. If it was necessary for a steamship line to choose the local territory of one New England road, then the Boston & Maine had the largest and most desirable local territory. A Liverpool line operating from a Boston & Albany East Boston pier is in competition with one berthing at a Charlestown pier. An inland shipper on the Boston & Maine gets a 10¢ rate to the Charlestown steamer, and an ocean rate of, say, 12.5¢ for 100 pounds, the through charge being 22.5¢. Obviously he will pay no more than 22.5¢ for shipping to Liverpool via the East Boston steamer. His inland rate to East Boston being 12.5¢, the steamer cannot charge more than 10¢.

That is, as a rule, on export and import business to and from local Boston & Maine points, the steamship line at East Boston piers, to be on a competitive basis, must take 50¢ per ton lower ocean freight than the line at the Charlestown piers can earn. The East Boston line feels this burden particularly in the fall and winter when the heavy New England apple crop,

[1] The railroad was compelled to furnish the steamship company with a pier free of rental. It did this in order to have occasion to earn money carrying export and import freight. Merchandise which the railroad does not carry is taxed for the support of the pier.

Export Terminals at Charlestown



Railroad Terminals and Piers at South Boston

practically all originating at Boston & Maine points, moves. Apples are, from a steamship point of view, one of the most valuable items of New England export.

Example of inflexibility. The system described can also work to the disadvantage of the shipper, because of its inflexibility. Take a case brought to the attention of the Port Directors. The International Mercantile Marine Company had, operating to Liverpool, the White Star Line from a Boston & Maine Charlestown pier and the Leyland Line from a Boston & Albany East Boston pier. The Leyland Line had practically weekly sailings; the White Star sailed fortnightly in summer, monthly in winter. During the winter several cars of paper arrived from Maine, via the Boston & Maine, consigned to the International Mercantile Marine Company for export to Liverpool. It happened that they missed the White Star boat. There would not be another White Star sailing for a month; a Leyland liner sailed the next week from East Boston. The International Mercantile Marine Company could not here, as it could at New York, for instance, divert to any pier in the harbor a shipment paying the inland export rate. The steamship company had its choice of holding the freight a month or taking, via East Boston, 50¢ per ton less than its contract ocean rate. It held the freight until the next White Star sailing.

CHAPTER III

TERMINAL CHARGES (Continued). PRACTICES IN OTHER PORTS

Terminal situation in belt line ports. The ideal situation in a seaport, from a traffic point of view, is public ownership of piers served by a public waterfront belt line cutting all railroads. Each road would then deliver its cars to the belt line which, for a low, uniform charge would put the car alongside any steamer at any location, to deliver export or take on import freight. Every ocean line would thus be served on equal terms by all roads and the port of Boston be a unit, so far as charges from the interior are concerned. There would be complete competition in inland service, equalization in rates, neutralization of the whole port district. This is the situation at ports with public belt lines, such as New Orleans and Montreal or New York. New York's harbor waters, as will be seen, serve as the equivalent of a belt line. In Boston and the other North Atlantic ports whose steamer accommodations are parts of separate railroad terminals, the port consists of a group of railroad deliveries. Practices at Boston are best judged in the light of practices at its rival ports, so these ports and their terminal charges deserve to be examined.

New Orleans. Montreal. New Orleans has a belt line which equalizes all piers it reaches. It switches cars for $2.00 each, covering both inward and outward

movements. The Montreal Harbor Belt Line switches in and out for $2.50 per car. All of the great foreign ports are of this order: publicly owned piers, neutralized, reached via a belt line and on equal terms to all inland rail carriers.

New York. New York has the equivalent of a harbor belt line in the Hudson, East and Harlem rivers, which cut the railroads off from the Manhattan and Brooklyn piers. The probable reason why New York was established on Manhattan was the consideration of safety: the harbor waters were a moat. If founded two hundred and fifty years later, New York City would have been established in Jersey City, where the railroads could reach it, each appropriating for itself certain sections of the city and so making of it a group of railroad terminals.

The first export and import traffic was carried by Erie Canal barges which could equally well deliver anywhere on lower Manhattan, Jersey City or Brooklyn. The rate to each of these points was the same.

When railroads were built they had to meet this situation. The New York Central had its terminal in lower Manhattan. All the other western roads terminated on the New Jersey shore. The railroads met the Erie Canal competition by likewise delivering, at the New York rate, to any steamer berthing in Manhattan, Brooklyn or on the Jersey shore: anywhere within the so-called "lighterage limits." Carload export freight is unloaded from cars into lighterage sheds in New Jersey, held 30 days free of storage, and then, without extra charge, loaded upon covered lighters and towed alongside a steamer anywhere in the harbor. Import freight is similarly taken direct overside into a lighter, or, after having been deposited on

a steamship pier, put into a lighter, then towed to the lighterage sheds and put into cars.

Advantages of the lighterage system. For the steamship companies this method is a very advantageous one. They are enabled to load local New York City freight from the pier, and "through" freight overside. A much smaller pier suffices to accommodate them than if it had to carry "through," as well as local, freight and if its handling and storage space were broken by depressed railroad tracks on the pier.[1] The system is, for the railroads, an enormously flexible one. There are large terminals at Jersey City, capable of great expansion. There can be no congestion in the movement of lighters in the harbor waters. Cars are promptly released after arrival at seaboard and per diem charges are saved. At any time before lighterage occurs, the shipper can change the destination of his shipment. He can send to New York unsold stocks, such as flour, and order them lightered as sold to various destinations for export. These last two privileges, which mean changing the destination of export freight after it has been unloaded from the car, are accorded to shippers in no other port.

For handling capacity, flexibility, ease of expansion, convenience offered to shippers, the New York lighter-

[1] Back of the Hamburg-American and North German Lloyd piers in Hoboken runs a belt line connecting with the Jersey railroads. Yet neither of these steamship companies has wanted to have spur tracks run upon its pier. They prefer to have traffic lightered to them to be taken overside. The New York Central has a freight line running down West Street—the Manhattan water street next the Hudson River—past most of the oversea and coastwise steamship piers. A few of the older piers have spur tracks on them, but these are no longer used. The Central unloads at its 60th Street lighterage sheds freight for transhipment to water carriers.

age system does what no belt line could do. These lighterage services are rendered at great cost to the New York railroads. From a transportation point of view, it is an anomaly to have oversea terminals situated on an island. But the early influence of the Erie Canal and the later severe competition of the trunk lines has forced and perpetuated a lighterage delivery system turning this natural disadvantage into a commercial advantage of the first order. Build a pier anywhere in the New York harbor waters and it is immediately reached by all roads through their lighters.

Absorption of cost of New York lighterage. Lighterage in New York is not absorbed in the case of near-by points. For instance, the rate from Newark to New York is 3¢ per 100 pounds higher than the rate to Jersey City, the extra 3¢ providing for lighterage. But on all roads, rates to and from points beyond a zone about 100 miles inland from the Hudson River, include "free lighterage."

New York's lighterage of New England freight. The New England carriers reaching New York City were in a different position. They had no Erie Canal barges carrying export freight there and delivering it upon equal terms anywhere in the harbor. So carload export freight from all Boston & Albany and Boston & Maine points is delivered anywhere within lighterage limits at 2¢ per 100 pounds above the rate applying to freight for local New York delivery. The New Haven, for making these deliveries, adds 3¢ to the New York rate except from points also reached by the Boston & Albany or Boston & Maine, for which the lighterage is, by competition, already fixed at 2¢.

At Philadelphia and Baltimore. At Philadelphia

and Baltimore, in spite of the fact that piers are railroad-owned, results are attained which are a compromise between the situation at New York and that at Boston. On all traffic to and from points beyond a certain narrow zone, the local rate provides for delivery to, or collection from, any pier in the harbor. Competition in service is provided for by the development of lighterage, by which one road serves the piers owned by another.

Baltimore. In Baltimore all oversea lines dock at railroad piers. As in Boston, a pier owned by a railroad is considered as part of the road's terminal. But all freight, C.L. or L.C.L., paying the inland carrier 7¢ per 100 pounds or over, is delivered to or taken away from any pier in Baltimore harbor. On freight paying a rate of less than 7¢, 2¢ for lighterage is added when delivery is made elsewhere than at a pier owned by the inland carrier; the total charge, however, does not exceed 7¢.

Effect of the practice at Baltimore. As a matter of fact the Baltimore & Ohio carries more of the freight interchanged with vessels docking at Pennsylvania Railroad piers than does the Pennsylvania Railroad itself. The distribution of import tonnage handled at these piers during 1911 is shown in the following tabulation, an exhibit of Baltimore in the 1912 Port Differential Cases:

DISTRIBUTION OF IMPORT TONNAGE HANDLED AT BALTIMORE & OHIO AND PENNSYLVANIA RAILROAD PIERS AT BALTIMORE, CALENDAR YEAR, 1911

Docking at	Number of Steamers	Cargo Tonnage	Inland by						Local	
			Pennsylvania Tons	Per cent	B. & O. Tons	Per cent	Outside Lines Tons	Per cent	Tons	Per cent
Penna. Piers	60	167004	35841	23.3	44643	26.7	4965	3.0	78535	47.0
B. & O. Piers	114	257095	19671	7.7	100293	39.0	6171	2.4	130960	50.09

It is observed that the Baltimore & Ohio Railroad carried more import freight away from the Pennsylvania Railroad's piers than did the Pennsylvania Railroad itself.

Philadelphia. At Philadelphia the conditions are still more liberal. In the case of export or import freight, C.L. or L.C.L., rates paying the Philadelphia inland carrier 5¢ per 100 pounds or more, will include transfer to or from any ship's side by lighter, car-float or team, at the railroad company's option. On traffic paying less than 5¢ per 100 pounds a terminal charge of 3¢ per 100 pounds is assessed; the total, however, not to exceed 5¢ per 100 pounds. There are available, for Philadelphia, no such complete statistics as those already given for Baltimore; but there is enough to indicate that in Philadelphia also these arrangements result in a neutralization of piers. In Philadelphia most steamers dock at piers owned either by the Pennsylvania or Philadelphia & Reading Railroad. The Baltimore & Ohio had a pier where the North German Lloyd steamers berthed, but this pier has been burned and never rebuilt. So far as Philadelphia & Reading or Pennsylvania steamers are

concerned, the Baltimore & Ohio is, in Philadelphia, entirely dependent upon lighterage or teaming, in handling export or import freight. Yet during the first six months of 1913, this outside road, having no steamer at a pier of its own, carried more first-class import freight from Philadelphia to western points than was carried by either of the railroad pier owners. Of this traffic, the Baltimore & Ohio carried 43.7%, the Philadelphia & Reading 37% and the Pennsylvania 19.3%.[1]

Wharfage elsewhere than at Boston. For purposes of comparison, wharfage charges in other ports than Boston should also be stated. In New York, where piers are owned by the city, there are, for shedded piers, no wharfage or side wharfage charges. The same is true of the Philadelphia piers, both city-owned and railroad-owned. At Baltimore there is a nominal side wharfage of 6¢ per ton levied. Wharfage at the Pennsylvania's Baltimore piers is 12¢ per ton for all freight on which the railroad does not get a haul; at Baltimore & Ohio piers the corresponding wharfage is 40¢ per ton, plus 20¢ per ton "handling charges."

Difficulty in application of flat Boston rate to all piers. There has long been a demand in Boston looking towards port unity, equalization of all pier locations in the harbor and neutralization of railroad-owned piers, with respect to carload freight. The usual suggestion has been that each railroad should apply to all piers the Boston rate from all its New England points; that is, the rate now applied to its own piers. The difficulty is the sacrifice which this would impose on the Boston roads in the case of low

[1] From a Trunk Lines Statistics Report; published in the *Philadelphia North American*, Sept. 4, 1913.

near-by rates. For instance, the Boston & Maine has a rate of 4.5¢ per 100 pounds on carloads of machinery from Beverly. If the Boston & Maine published this rate as applying also to East Boston piers, the Boston & Albany would have to be paid 2.5¢ for switching from East Somerville. The Boston & Maine's net would be $4.5 - 2.5 = 2¢$ per 100 pounds, manifestly an unprofitable rate from Beverly to East Somerville. The Boston & Maine has a commodity rate of 4¢ on scrap leather in carloads from its piers to Reading, Mass., 5¢ on carloads of potash to Bowdoinham, Me. It may be that these rates are unprofitable, applying to Boston & Maine piers. But the Boston & Maine voluntarily establishes them, applying to its own terminal. It may or may not elect to absorb into these low rates switching charges between its rails and piers not part of its terminal.

Proposed raising of near-by rates to serve all piers. It does not seem just or necessary to require the roads to make the sacrifice of absorbing switching charges into their low near-by commodity rates. This is no traffic that is in danger of being taken off to some other port. To meet this near-by situation and yet put all piers on the same basis, it has been suggested that Boston near-by local rates should be increased by 2¢ per 100 pounds, when used for export or import traffic. It is proposed so to increase these local rates, when used for foreign traffic, up to a maximum of 10¢ per 100 pounds, or the New York rate, if the rate to or from New York is less than 10¢ per 100 pounds. Such increased rates and all present rates of 10¢ or over, would include service to or from any pier in the port. It is stated that it is justifiable to charge more for carload export or import traffic than for local

business. Carloads of exports and imports are unloaded or loaded by the railroad; local carloads are handled by shipper or consignee.

Burden of such increased rates. Such an arrangement would put an unnecessary burden on those for whose need the present low commodity rates were established to apply from specific piers. Ludlow is a local Boston & Albany point, reached only by that road. The Ludlow Manufacturing Associates have a rate on imported jute of 5¢ per 100 pounds applying from East Boston piers. The only jute the company gets is from Calcutta boats which discharge it at these Boston & Albany piers. It would be no favor for this Ludlow concern if its rate were raised to 7¢ in order to enable it to get jute at that price from South Boston piers, where none is landed. Bagging is made from the jute. The Ludlow firm needs the present low 5¢ rate to enable it to compete with a New York rival located on the waterfront, with western rates on bagging the same as those from Ludlow. The near-by situation cannot be profitably disturbed.

Present rates 7¢ or over should include universal port service. Traffic for or from points beyond the near-by zone should at the present rates include service to or from any pier in the harbor. It is not right that cars which have paid the rate on paper from Maine to Boston should not be entitled to delivery anywhere in the harbor. In Baltimore this universal delivery is afforded to any traffic paying a Baltimore rate of 7¢ per 100 pounds or more; in Philadelphia universal delivery is afforded to any traffic paying 5¢ per 100 pounds or more. The Boston roads can fairly be asked to serve any pier in port, in the case of carloads paying 7¢ per 100 pounds or over. Because

of the admirable co-ordination of Boston & Albany and Boston & Maine terminals, these Boston roads can deliver freight to each other's piers at lower transportation cost than prevails in Philadelphia or Baltimore.

The cost of switching. It will be recalled that the flat Boston rate delivers carload freight on the piers of the inland rail carrier at Boston. The larger number of cars switched between the piers of one road and the rails of another are interchanged between the Boston & Albany and the Boston & Maine. A car arriving over the Boston & Albany for export at its own East Boston piers is carried in a train moving over the Grand Junction Railroad through the Boston & Maine yard at East Somerville. (See Plan B, opposite page 30.) Here Boston & Maine cars for East Boston piers are picked up and taken to their destination along with those which had arrived over the Boston & Albany. At East Somerville the Boston & Albany cars for Charlestown piers are dropped and later set on the piers along with cars which had arrived over the Boston & Maine.

Boston & Albany cars for Charlestown piers. The Boston & Albany charges 2.5¢ per 100 pounds for switching the Boston & Maine's car of freight to the East Boston pier. At a recent hearing before the Massachusetts Public Service Commission,[1] a representative of the Boston & Albany testified that 2.5¢ was the actual cost of this service. Therefore it costs the Boston & Albany 2.5¢ for taking its own car from East Somerville to the East Boston pier, for absolutely the same service is performed on it as on the

1 The National Docks and Storage Warehouse Company versus the Boston roads.

Boston & Maine car. If the Boston & Albany drops its car at East Somerville, it would save 2.5¢ per 100 pounds. The Boston & Albany does drop some cars at East Somerville and the Boston & Maine, for a switching charge of 2.5¢ per 100 pounds, delivers them to the Charlestown steamers. It is no financial burden for the Boston & Albany to include, in its flat Boston rate, the payment of the Boston & Maine's switching charge of 2.5¢ per 100 pounds, for this 2.5¢ merely equals the delivery cost which the Boston & Albany would assume if the car moved to its own pier. That is, without any sacrifice the Boston & Albany can include, in its Boston rate, delivery to the Charlestown piers. In the case of import freight, the same principle applies.

Boston & Maine cars for East Boston piers. The Boston & Maine carries export cars, destined for Charlestown piers, across the Grand Junction tracks and into the East Somerville yard. In the hearing already mentioned, a Boston & Maine representative stated that 2.5¢ per 100 pounds was the cost price of switching and terminal service performed on cars of export or import freight. Therefore the Boston & Maine would save 2.5¢ per 100 pounds on every car of exports which it could have taken off its hands by the Grand Junction Railroad. 2.5¢ per 100 pounds is the charge for which the Grand Junction will take a car and deliver its contents to an East Boston pier. Therefore without any financial sacrifice the Boston & Maine can include, in its Boston rate, the payment of 2.5¢ per 100 pounds switching charge to the Boston & Albany for delivering a car at an East Boston pier. In the case of import freight, the same applies.

To South Boston piers from Boston & Maine and

Boston & Albany. Since June, 1913, there has been a regular service from a South Boston pier, Commonwealth Pier No. 5. Beginning in the summer of 1914 there were operating from this pier the White Star Line to the Mediterranean,[1] White Star to Liverpool, Hamburg-American to Hamburg. The cost of reaching this and future South Boston piers from local Boston & Albany and Boston & Maine points is admittedly greater than the cost of reaching their own terminals. It will be shown later[2] that, by means of the carfloat routes proposed, the cost to the Boston & Maine or Boston & Albany of transporting freight to or from South Boston piers would be about 1.5¢ per 100 pounds more than to or from the own pier of one of these inland carriers. Similarly, freight between New Haven points and a Boston & Albany or Boston & Maine pier would cost the New Haven about 1¢ more than to or from a South Boston pier.[3] The extra costs to be absorbed, then, in making the port a transportation unit, are those involving the comparatively small tonnage between New Haven rails and other than South Boston piers, or between South Boston piers and other than New Haven rails.

Lower interchange costs than at Baltimore and Philadelphia. In neither Philadelphia or Baltimore are the railroads so correlated as are the Boston & Albany and Boston & Maine, with the result that at these ports, the roads must resort to lighterage in

[1] These lines will resume operation at this pier after the war.

[2] Chapter XV.

[3] The New Haven would pay 2.5¢ after putting the export car on a float (chapter XV), an operation no more costly than setting it on a South Boston pier. The New Haven would save 1.5¢ by not exporting at a South Boston pier: 1¢ cost of unloading the car and 0.5¢ paid the Port Directors for use of the pier. $2.5 - 1.5 = 1¢$.

order to reach each other's piers. For this the Pennsylvania Railroad in Baltimore pays a private company 40¢ per ton, 2¢ per 100 pounds. The Philadelphia & Reading in Philadelphia pays 30¢ per ton, 1.5¢ per 100 pounds, for its lighterage. This is a pure addition to the cost of handling the freight over the piers of the railroad carrier; it is, in fact, handled over a lighterage pier belonging to the carrying railroad. In New York, as has been seen, all export and import freight is lightered, at a cost of at least 3¢ to the roads.

What can fairly be asked of Boston roads. The Boston railroads, therefore, can fairly be asked to neutralize the port in the case of New England traffic in carloads paying 7¢ per 100 pounds or more; that is, have such rates provide delivery to, or collection from, any pier in the port. The Boston & Maine and Boston & Albany terminals are so situated that they can, without extra cost, be considered as a unit by both roads. The cost of getting cars between rails and piers on the north and south sides of the harbor respectively, is less than that borne by railroads employing lighterage so to interchange freight at Baltimore and Philadelphia.

Question of equalizing on L.C.L. Theoretically, the same sort of unification of the port should be brought about in the case of L.C.L. That would mean the abolition of the wharfage charges of 40¢ per ton exacted at each pier on all teamed freight on which the pier owner does not get an inland haul. As has been shown, an export shipment arriving over the Boston & Maine now pays, to get aboard the steamer, the Boston rate plus teaming from the Boston freight station to the pier. If exported from a Boston & Albany pier this same shipment would pay the Boston

rate plus teaming plus 40¢ per ton wharfage. The remedy would be to remit all wharfage on rail-brought L.C.L., so that from all points in New England a small shipment could be put aboard any Boston steamer for the Boston rate plus teaming.

Wharfage remission undesirable. If this remission of wharfage on teamed inland freight were allowed, wharfage would also have to be remitted on teamed local (Boston) freight. It would be difficult—and unjust, even if possible—to distinguish between the two. To abolish all wharfage would be to throw away a large and much-needed source of revenue at both railroad and State piers. There would not be sufficient practical advantage to offset this loss. Neither Boston freight nor New England L.C.L. is driven to New York by this wharfage charge. Even when rail rates to New York and Boston are equal, the cost of teaming in New York is usually equal to teaming plus wharfage in Boston. In the case of competitive L.C.L., from points beyond New England, wharfage at Boston is absorbed by the rail carrier and does not appear as a charge on the freight.

Competitive traffic. With regard to competitive carload traffic the switching charges are different from those already detailed. By competitive traffic is meant that of points beyond New England lines. Such export and import traffic could in all cases be carried by either the Boston & Maine or the Boston & Albany, in some cases by the New Haven. The same Boston rate applies, no matter which of the Boston roads is the terminal carrier of the traffic. Such a competitive point is Utica, New York, reached by the Boston & Albany connecting with the New York Central at Albany, or by the Boston & Maine con-

necting with the New York Central Lines at Rotterdam Junction.[1] Another is St. Albans, Vt., reached by the Boston & Albany connecting with the Central Vermont at Palmer, Mass., or by the Boston & Maine connecting with the Central Vermont at White River Junction. Another competitive point is Montreal, reached by the Boston & Albany connecting with the Central Vermont at Palmer, or connecting with the New York Central at Albany. Montreal is reached by the Boston & Maine connecting with the Grand Trunk at White River Junction or connecting with the Canadian Pacific Railroad at Newport, Vt. All leading points in the Middle West and the South[2] are reached by the Boston & Albany-New York Central route; also by the Boston & Maine-New York Central route; and by the Boston & Maine connecting with practically all other western lines, such as the Erie, the Delaware, Lackawanna & Western, the Lehigh Valley, the Pennsylvania, the Baltimore & Ohio, the Chesapeake & Ohio, the Norfolk & Western; also by the Boston & Maine through Canada in connection with the Grand Trunk and the Canadian Pacific Railroad.

Competitive switching charges. If any export car from such a competitive point is brought to Boston by one road[3] and switched by another for export at the pier of the road not getting the inland haul, the switching charge is 4.5¢ per 100 pounds, minimum $9.00 per car. This, it will be recalled, compares with 2.5¢ per 100 pounds charged for the same service on non-competitive business. The shipper in Columbus, Ohio, will obviously pay no more than necessary to

[1] See Map II, following text.
[2] See Map III, following text.
[3] The Boston & Maine or the Boston & Albany.

reach an East Boston pier. He can reach that pier via the New York Central-Boston & Albany route for the payment of the flat Boston rate. If the Boston & Maine and its western connections desire to carry his car of freight they can charge him no more than the Boston rate therefor. Then, out of this rate, the Boston & Albany must be paid 4.5¢ per 100 pounds for switching from East Somerville to the Boston & Albany pier.

The purpose of the charge is to cause such a reduction in the net earnings of the Boston & Maine and connections that this route will be discouraged from attempting to haul the competitive traffic in question. The effect is an undesirable one upon the business of the port of Boston, for it confines the western soliciting force working for a steamship line largely to the western representatives of the line's railroad pier proprietor and the western roads with which that railroad has through routes and rates. The piers of the Boston & Albany are most affected, because this road has through rates to the West only in connection with the New York Central; the Boston & Maine has such through rates in connection with the New York Central and all other western lines as well.

Boston needs interest of trunk lines. No western export traffic naturally comes via Boston. It all originates on the lines of carriers whose home ports, giving them the longest hauls and the largest earnings, are other than Boston. Or, if the traffic does not originate with such a carrier, it must pass over the rails of such a carrier before reaching the Boston roads, none of whose lines run west of the Hudson

River. This statement is one of the axioms of the Boston problem and cannot be left out of view.

The more natural connections of the Boston roads are the northern trunk lines,[1] domiciled in New York: the New York Central Lines, including the West Shore; the Erie; the Lehigh Valley; the Delaware, Lackawanna & Western. The Boston export rate is the same as the New York export rate from western points; that is, points in New York State beyond the Hudson River, and all points west of and including Buffalo and Pittsburgh. For the New York Central Lines to haul Chicago traffic, for instance, for export via Boston, means hauling it to Albany for further carriage by the Boston & Albany, which is paid about 21% of the through Boston (or New York) rate.[2] Export traffic for a Boston & Maine pier is hauled by the New York Central to Rotterdam Junction, and there delivered to the Boston & Maine, which is paid about 22% of the through Boston export rate. The Delaware, Lackawanna & Western, the Lehigh Valley and the Erie can haul their Boston export traffic only to or near Binghamton, whence it is taken by the Delaware & Hudson to Mechanicsville, thence by the Boston & Maine to Boston. For this the Delaware & Hudson gets about 12% of the through rate, the Boston & Maine 21% or 22%, altogether about one-third of the rate from Chicago. The sacrifice is considerable for the Erie after it has hauled the traffic all the way from Chicago. The sacrifice is still

[1] Technically, a trunk line is one between the seaboard and Buffalo or Pittsburgh, Salamanca, Wheeling, etc. For location of railroad lines, junction points and seaports mentioned, see Maps II and III, following text.

[2] See Map III, following text.

greater for the Lehigh Valley or Delaware, Lackawanna & Western. These roads see over 50% of the through rate handed over to the carrier Chicago-Buffalo and 33% to the carriers Binghamton-Boston. That leaves about 16-17% for the service Buffalo-Binghamton, including a terminal service performed on the cars at either end of that haul.[1]

Can expect most of northern trunk lines. From the nature of things Boston has the most to expect from carriers with through lines from Chicago, which make direct connection with a Boston road and therefore need suffer only a single rate division in order to reach this port. Boston gets its principal traffic from such lines making such direct connection, and making it a considerable distance before reaching their home port, so that the division accorded the Boston lines represents a real saving in terminal haul and terminal expenditure. These lines are the New York Central, the Grand Trunk and the Canadian Pacific, the two latter especially in winter, when by exporting traffic through Boston they save the long hauls to Portland and St. John. To be sure, for South Boston deliveries the Erie at Maybrook makes connection with the New Haven, but when the Erie has hauled traffic to Maybrook, it is almost at New York. The Pennsylvania connects with the New Haven at New York itself. For it to haul Boston export traffic is to give the New Haven over 25% of the Boston (New York) export rate[2] after having hauled the traffic all the way to

[1] It should be stated that, during the seven months of open lake navigation, the Delaware, Lackawanna & Western and Lehigh Valley, by their Lake lines from Buffalo, have reached Chicago and Duluth, and so have been in the position of other through New York-Chicago lines.

[2] The Boston is the same as the New York export rate.

New York. The same is true of the Lehigh Valley, connecting with the New Haven at New York.

Bad effect of 4.5¢ switching charge. However, the northern trunk lines, other than the New York Central, do have through export rates to Boston from western points via the Boston & Maine, and these rates do, nominally, provide for absorbing the Boston & Albany switching charge and delivering at an East Boston pier.[1] The testimony of western shippers is that this is a quiescent provision, and that these lines do not want East Boston business.[2] The reason is apparent. In the case of exports at Boston & Maine piers, the entire Boston rate is prorated among the connecting carriers. The Boston & Maine, out of its proportion, performs the terminal service which, it says, costs about 2.5¢ per 100 pounds. If the car is for export at a Boston & Albany pier, however, the Boston & Albany 4.5¢ switching charge is deducted from the Boston rate and only the remainder is prorated, or divided, among the Boston & Maine and connecting carriers; the 4.5¢ being added to the Boston & Maine proportion.

Take the case of flour, carried out of Chicago by the Erie or the Grand Trunk's Chicago-Buffalo line. If the car is for export at a Boston & Maine pier, the

[1] Except in the case of grain. No switching charges are absorbed by the grain rates from the West.

[2] It is true that a small percentage of competitive export traffic hauled by the Boston & Maine or Boston & Albany is switched to the piers of the non-carrier. Most cars so switched are cars whose destination is changed, as allowed in tariffs, before they arrive in Boston; for instance, the International Mercantile Marine Company sometimes so diverts cars of flour to its Charlestown or East Boston sailings, as suits its loading requirements. Little traffic primarily booked for East Boston piers is carried by other trunk lines than the New York Central.

Erie or the Grand Trunk and all other carriers intermediate to Boston, would get their proportions of 14¢, the full Boston export rate. If for export at a Boston & Albany pier, the proportions would apply to 9.5¢ instead of 14¢; the revenues of the controlling[1] western carriers are reduced by 31%, though they render exactly the same service. Excepting for grain—on which no one pretends to absorb switching charges—flour is the largest item of export traffic. If the Delaware, Lackawanna & Western or Lehigh Valley, which would probably bring the Grand Trunk Boston export traffic from Buffalo to Binghamton, had that traffic to carry to New York, they would be given 3¢ for themselves performing a lighterage service at New York, and would earn the entire east-of-Buffalo proportion of 11¢ (14 — 3¢).

The effect of the 4.5¢ switching charge is to deprive steamers at East Boston of the interest of western roads other than the New York Central.

It may seem that a minor matter is here minutely dwelt upon. It is the common opinion that rate divisions are an inter-railroad concern and no affair of the public. In general that is true; the public is concerned only in through rates, not in their apportionment among carriers. In this particular case, however, switching charges and provision for their absorption concern the development of the port.

Equalized through rates. With the growing tendency towards stable ocean rates, arranged to produce

[1] By "controlling" is meant: the shipment originates on their lines and they are free, particularly in the matter of car supply, to determine whether they will haul it or not; or, if the shipment originates off their lines, their soliciting forces go far towards determining whether they carry it or not.

the same through rate from American interior point to destination, the element of solicitation by inland carriers becomes increasingly important. Salesmanship of transportation, like anything else, really begins when price-cutting is dropped. In April, 1914, the rates on flour from Chicago to Liverpool, London and Hamburg via the leading Atlantic ports, were as follows, applicable to April shipments of flour from the West:

THROUGH RATES ON FLOUR, CHICAGO TO LONDON
CENTS PER 100 LBS.

	Via Baltimore	Via Philadelphia	Via New York	Via Boston
Inland rate	12	13	14	14
Ocean rate	14	13	12	12
	26	26	26	26

THROUGH RATES ON FLOUR, CHICAGO TO HAMBURG
CENTS PER 100 LBS.

	Via Baltimore	Via Philadelphia	Via New York	Via Boston
Inland rate	12	13	14	14
Ocean rate	13	12	11	11
	25	25	25	25

THROUGH RATES ON FLOUR, CHICAGO TO LIVERPOOL
CENTS PER 100 LBS.

	Via Baltimore	Via Philadelphia	Via New York	Via Boston
Inland rate	12	13	14	14
Ocean rate	13	12	11	11
	25	25	25	25

Importance of western solicitation. With such equalized through rates, the soliciting forces of the railroads count largely with shippers, in the expression of railroad preference and its promises of service and car supply, all of which vary with its interest in the traffic in question. The shippers are certain to distribute their shipments among all of the various so-called trunk lines: the carriers east of Buffalo. It is not a right condition when the operation of switching charges is such as to discourage three of the northern trunk lines from taking an interest in having such traffic move over any other than Charlestown piers in Boston. Boston's situation, having no trunk line of its own west of the Hudson River, is one where it cannot neglect to make all reasonable effort to obtain for all pier locations the greatest possible trunk line co-operation.

Switching charges on competitive exports should be reduced to 2.5¢. The Boston & Maine and Boston & Albany roads can fairly be asked to reduce to 2.5¢ per 100 pounds their switching charge on competitive traffic. The result would be that the Boston & Maine would have to ask the western roads to permit it to deduct only 2.5¢ terminal charge before prorating the Boston rate among carriers, instead of 4.5¢ as at present. At New York the terminal carrier deducts 3¢ before prorating. The effect of the reduced Boston terminal deduction would be to increase the interest in East Boston steamers on the part of western connections of the Boston & Maine besides the New York Central. East Boston piers would be more freely opened to all western soliciting forces.

Situation at Charlestown and South Boston. As has been indicated, the Charlestown piers are now

well taken care of, for the Boston & Maine has through rates from the West in connection with all carriers and itself assumes the terminal costs on this freight. South Boston piers are similarly provided for. The New Haven has through rates from the West, connecting with the Boston & Albany (New York Central) at South Framingham. The New Haven connects with the Pennsylvania and Lehigh Valley at New York, with the Lackawanna and the Erie at Maybrook; and it prorates with them, the entire through Boston rates applying via those junctions. Under its contract with the Port Directors, the Boston & Maine delivers to South Boston piers, at the Boston rate, Canadian export traffic coming from either the Canadian Pacific Railroad or the Grand Trunk.

Lack of competition on imports for West. For historical reasons there is a complete lack of competition for the carrying of western import freight landed at East Boston or Charlestown piers. This freight must go inland by the lines of the railroad pier owner and its connections, as import tariffs do not provide for the absorption of Boston switching on import freight. Railroad competition for export freight is desirable because it means strong solicitation for that freight in the West and good service to the port. Railroad competition for the hauling of import freight means prompt car supply, prompt loading and forwarding inland.

Reason for lack of competition. The reason for this lack of competition for imports for the West deserves to be considered. For a long time the domestic rate from all New England to the West was identical with that from New York City, based on 75¢ per 100 pounds

to Chicago, first class; the rates on lower classes and commodities ranged below this 75¢. Other western points were a percentage of the Chicago rate. This 75¢ domestic scale applied by all "standard" routes west; *i.e.*, via the New Haven, Boston & Albany or Boston & Maine and their rail connections west of the Hudson. The Grand Trunk and the Canadian Pacific Railroad, being round-about routes to the West and incapable of making such good time as the direct, standard routes, could get no New England business at 75¢ rates, so they introduced and upheld a 70¢ scale to the West, much to the profit of the New England shipper.

Joint Traffic Association agreement. For the sake of preventing demoralization of the domestic rate structure, the Canadian lines were allowed by the standard lines to maintain this "differential" on westbound domestic freight, but on import freight the 70¢ scale was met, sometimes underbid, by the standard, direct Boston lines. However the Boston standard routes were allowed by the trunk lines to apply the differential scale only to traffic arriving at the pier of the Boston terminal carrier. On traffic switched in Boston the standard domestic rates were to apply. An early recognition of this is in Circular No. 552 of the Joint Traffic Association, of December 17, 1896:

> The Boston & Albany, New England and Fitchburg Railroad companies may, as to freight received at their own docks and wharves in Boston harbor, from foreign ports, consigned to and through the western termini of the trunk lines, apply thereto the westbound all-rail rates duly authorized upon like freights destined to the same points via all-rail routes from Boston through Canada via St. Lawrence River Cross-

ings. It is, however, stipulated that said companies shall apply said rates only to import tonnage which is landed at their own Boston docks and wharves respectively, etc.

New York, Philadelphia and Baltimore carried the same standard all-rail import as domestic rates; namely, New York 75¢ scale, Philadelphia 69¢, Baltimore 67¢.

1912 Differential decision eliminates old distinctions. In 1909 the Boston standard lines, not satisfied with the import traffic they were getting at a 70¢ scale, dropped to 67¢, the Baltimore basis, on the ground that they deserved, and had formerly had, a still lower scale than this. Baltimore and Philadelphia objected, and there was a war of import rates, the matter being finally referred to the Interstate Commerce Commission for arbitration. The Commission ordered import rates via the Boston standard lines to be raised to the New York 75¢ scale, where they had never been before. Only differential routes were allowed to go on taking the 70¢ import scale from Boston, the leading differential routes being the Boston & Maine-Grand Trunk through Canada, the Boston & Maine-Canadian Pacific Railroad through Canada; and the roundabout route to the West by the Rutland-New York Central, reached by the Boston & Albany via Chatham, by the Boston & Maine via Bellows Falls.[1] The leading import organization soliciting freight for Boston has been the foreign representatives of the American Express Company, acting as import agents for the Merchants Despatch, which means the routes formed by New York Central Lines and Boston & Albany or Boston & Maine. The American Express has largely built

[1] See Maps II and III, following text.

up Boston's import business. The standard New York Central routes having been deprived of the import differential, the business is being to a large degree turned to the New York Central differential route still carrying the 70¢ scale; namely, the Rutland-New York Central.

As every one knows, the Commission's decision raised a high barrier to the future growth of the movement of western imports through Boston, by depriving the port of the service of its standard routes to the West, at the 70¢ import rates.

Differential rates apply to routes, not pier groups. For imports the standard routes are, therefore, available only at the 75¢ scale. No limitation is put upon the pier of discharge for the import business that may be taken at those rates. Similarly, no limitation is put upon the pier origin of Boston import business which may be carried west for 70¢ by the differential routes. The Commission's decision speaks of the port of Boston as a whole. At a rehearing it was impossible to make Commissioner Clark see that the import terminal service rendered to a single group of railroad-owned piers in Boston was essentially different from that rendered in New York, by means of lighterage, to independent piers scattered all over the port.

Now possible, but unnecessary, for Boston & Maine and Boston & Albany to absorb switching on western imports. It is easy to say that the way is free for the Boston & Albany to provide in its import tariffs for absorbing the cost of getting to its rails import traffic landed at Boston & Maine piers, and for the Boston & Maine to do the same for import traffic landed at Boston & Albany piers; and that the Boston & Maine and Boston & Albany should so amend their

tariffs. If there were a belt line and publicly owned piers at Boston, the railroads would compete for import traffic by prompt furnishing of empty cars to the belt line and prompt sending of men to any pier, to load the cars. This is the case at New Orleans and Montreal. But the Boston & Albany cannot switch a car into a Charlestown pier, for that is part of the Boston & Maine terminal; nor can the Boston & Albany send men there to load a car. The furnishing of the car and the terminal service performed upon it—in which lies the essence of competition for import freight—must be performed by the Boston & Maine. After that has been done, there is no particular advantage in having the car hauled inland by the Boston & Albany.[1]

Real competition in service would compel lighterage. The only way for the Boston & Albany to compete for that import freight would be to take it overside from the Charlestown steamer, lighter it to an East Boston pier and there put it into a car going west. This is what every railroad at Baltimore and Philadelphia does with regard to freight landed elsewhere than at one of its own piers. This lighterage system is the method by which New York railroads compete for all import freight landed there.

An unnecessary burden under present conditions. Such lighterage would make freight imported at Charlestown cost the Boston & Albany from 2¢ to 2.5¢ per 100 pounds more than freight imported over its

[1] Import traffic for the West landed at Commonwealth Pier may move inland over any of the three Boston roads: over the New Haven direct, over the Boston & Albany via South Framingham, over the Boston & Maine via Concord Junction or Lowell. (See Map I, following text.) But in every case the competitive part of the service—putting the freight in a car and getting the car started—is performed by the New Haven.

own piers. Similarly, every 100 pounds of freight which the Boston & Maine took overside from an East Boston steamer would cost it 2¢ or 2.5¢ more than if the freight were landed at Charlestown. If a considerable volume of freight were so lightered between the piers of one carrier and the cars of another, there would be a large reduction in the revenues on this traffic, of the Boston roads as a whole. The revenue which the New England carrier gets as its proportion of through rates to the West is so small that it should not be interfered with, particularly when the matter is not a vital one. The trouble with Boston's import business to the West is not in terminal service, but in rates, as will be seen. This business will not suffer in any marked degree if the Boston & Maine and Boston & Albany are allowed to retain the exclusive hauling of western imports landed at their respective piers.[1]

[1] The only tangible advantage of having the 70¢ differential route import rates include absorption of switching charges from an enemy railroad's pier would be that this would make the foreign soliciting forces of the Grand Trunk and Canadian Pacific, differential connections of the Boston & Maine, interested in getting traffic for Boston & Albany steamers.

CHAPTER IV

TERMINAL CHARGES (Concluded). THE COST OF HANDLING COTTON AND GRAIN

Side wharfage charges. The high "side wharfage" charges at Boston have, on the port's business, an adverse effect out of proportion to the small revenues that they bring the railroads. "Side wharfage" (overside wharfage) is charged by the railroad on goods handled over the ship's side into lighters, while the ship is tied up to the railroad pier. The theoretical justification for this is simple. If the railroads built their piers close together, with only the width of two steamers between them, they could get more piers in a given length of waterfront than they get at present. At present the water space between adjacent piers allows not only for two steamers opposite each other but for a lighter to lie alongside either ship. It is said that these lighters should pay some return on the space reserved for them. Perhaps there was a time when the side wharfage charge was of advantage to the railroads in holding off the competition of the rail-and-ocean routes, particularly on export cotton from the Southwest. That time, however, is past. At present, side wharfage tends to keep away from this port cotton which the railroads could in no case haul.

Southwestern cotton. The principal lightered freight is cotton for export brought to Boston by the

southern coastwise steamers: from Norfolk, Charleston and—particularly—Savannah. Southern cotton available for export at Boston is of two sources: cotton from the Southeast, concentrated at such points as Atlanta, Savannah or Norfolk; and cotton from the Southwest, concentrated at Memphis or St. Louis. On this southwestern cotton the all-rail rate to Boston is 2¢ per 100 pounds higher than the rail-and-ocean rate (rail to Norfolk or Newport News, thence coastwise steamer to Boston). The rail-and-ocean rate delivers alongside the steamer; that is, it absorbs the 1¢ per 100 pounds, 20¢ per ton, side wharfage charged by the railroad pier owner. The advantages of all-rail over rail-and-ocean transportation for cotton are considerable, in the matter of protection from weather, saving in handling by hooks, etc. Therefore, the difference of 2¢ per 100 pounds in the rate is not sufficient to attract southwestern cotton to the rail-and-ocean route; practically all this business moves all-rail today. The rail-and-ocean rates being fixed, the abolition of side wharfage would not affect the situation one way or another; southwestern cotton would continue to move to Boston all-rail.

Southeastern cotton. In the case of southeastern cotton, however, the abolition of side wharfage would strengthen the coastwise companies in their attempt to get this export business for Boston. The rail rates from the interior to southeastern ports, plus the ocean rates to Boston, are so much lower than the all-rail rates to Boston from the southeastern interior that this traffic will always move to this port by water. Side wharfage charges could not be levied high enough to throw the business to the all-rail routes. The 1¢ per 100 pounds, 5¢ per bale, side wharfage, does affect

the coastwise companies in getting this traffic for Boston rather than for other ports.

Southeastern export cotton handicapped by Boston side wharfage charge. The export cotton of the Southeast does not move abroad on a through bill of lading from the American interior, as does cotton from the Southwest. Southeastern cotton moves on the local rate to a seaport such as Norfolk or Savannah, and has its choice of going abroad direct by tramp steamer, or coming north by coastwise steamer and there being transhipped into a liner for destination. For many reasons the rates by liners from northern ports are lower than the rates by tramps or irregular lines from southern ports. However, in order to move the traffic via northern routes, the northern ocean rate plus the coastwise rate to the North must be lower than the direct southern ocean rate. The 1¢ side wharfage increases by 1¢ the expense of the Boston route, for the coastwise lines take this Boston terminal charge into consideration in fixing the minimum below which they cannot shrink their rates, in order to move the traffic this way.

No side wharfage on export cotton at other ports. There is no such side wharfage charge levied on water-brought export cotton in New York or Philadelphia. Even in Baltimore, where in general a side wharfage charge of 6¢ per ton exists, it is waived in the case of export freight brought by the southern coastwise lines, for the purpose of permitting the oversea lines to get as much as possible of this southeastern freight, which the railroads could not haul in any case. Supplement 11 to Pennsylvania Railroad's G. O., I. C. C. 3,167, giving terminal charges at Baltimore, provides:

Side wharfage will not be charged on business by steamer lines operated as part of through rail-and-water routes via Norfolk, Pinners Point, Portsmouth, Newport News, West Point, Va., Savannah, Ga., Jacksonville, Fla., and Charleston, S. C.

Boston lines need southeastern cotton. There should be a similar provision throwing Boston oversea piers open, without penalty, to southeastern export cotton. The Port Directors, as owners of Commonwealth Pier, are in the position to initiate this reform. With an increased movement to this port of export cotton from the Southeast, the Boston ocean rates on cotton will become more profitable. At the present time, Boston steamers are largely dependent upon southwestern cotton, whose long inland haul has already absorbed so much of the total bearable transportation charge that there is little left for the steamship lines. New York, which has dumped down in it great quantities of water-brought cotton from the Southeast, gets much better ocean rates. In April, 1914, ocean rates on cotton for export to Liverpool were:

OCEAN RATES ON COTTON, CENTS PER 100 LBS.

From Baltimore	From Philadelphia	From New York	From Boston
Johnston Line, 18	American Line, 20	Cunard, . 30	Cunard, . 15
		White Star, 20	White Star, 12
			Leyland, . 12
			Warren, . 12

Grain terminal charges. Up to this point grain has purposely been eliminated from the examination of

terminal charges and practices in Boston. Some terminal charges and practices, with respect to grain, are discriminatory, compared with those at other ports, and are disadvantageous to the development of this gateway.

The ex-Lake grain rates. The effect of these terminal charges at Boston is best seen by examining a specific class of traffic; for instance, grain moving from Buffalo elevators to the seaboard for export. This traffic moves on the following so-called ex-Lake rates, applying to Boston and its competitors (summer rates, 1914):

EX-LAKE EXPORT WHEAT RATES

Buffalo to Baltimore . . .	5.20¢ per bushel
Buffalo to Philadelphia . . .	5.20¢ per bushel
Buffalo to New York . . .	5.50¢ per bushel
Buffalo to Boston	5.50¢ per bushel

The "differential," or lower, rate of 0.3¢ per bushel, applying to Baltimore and Philadelphia, was fixed by award of the Interstate Commerce Commission, and does not change when the rates vary. Boston and New York are best compared, because their rates are the same. Also, Boston gets practically all of its ex-Lake grain from the New York Central Railroad, in connection with the Boston & Albany east from Albany, and the Boston & Maine east from Rotterdam Junction.

Elevation charges and services. At all of the ports in question the terminal seaboard railroad maintains one or more stationary grain elevators for the temporary storage of grain until the exporting vessel is

ready to carry it. For the services of this elevator a charge is made everywhere, except at New York. These services include the shoveling of grain from cars into the hoppers of the elevator, the elevation of grain to the storage bins of the elevator, its free storage for a short period of time, and its later delivery by spout into barge or vessel alongside. In Boston the charge for this service is 0.9¢ per bushel and goes to the railroad owner of the elevator. The railroad's earnings on export grain from Buffalo to Boston are thus:

Ex-Lake rate	5.5¢
Elevation	0.9
	6.4 per bushel

What rate plus elevation includes in Boston. In Boston there are three grain elevators: one attached to the Boston & Maine Hoosac pier group at Charlestown, one attached to the Boston & Maine Mystic pier group at Charlestown, and one attached to the Boston & Albany pier group at East Boston. Each of these elevators is connected by means of grain conveyor galleries with each pier in the group of which it is a part, and can spout into any vessel at a berth in that pier group. Such delivery is included in the 0.9¢ elevation charge. Grain is not, however, delivered to vessels elsewhere in the port except for an additional 0.625¢, charged by the Boston floating elevator company for towing the grain in a barge alongside a vessel, and putting it aboard; and a "half wharfage" of 0.5¢ per bushel, charged by the railroad pier owner. The

total charge from Buffalo for this latter type of delivery in Boston is:

Ex-Lake rate	5.5¢
Railroad elevation	0.9
Floating	0.625
Half wharfage	0.5
	7.525¢ per bushel

In all cases the Buffalo-Boston railroad route earns 6.4¢ on the shipment.

What is included in New York. In New York the case is different. No steamship lines berth at piers adjacent to the railroad elevators. The steamers berth in Manhattan, or Brooklyn or Hoboken, and grain must be barged to them from the railroad terminals on the New Jersey shore. When the barge has been brought alongside the steamer, the grain must be transferred to the ship by means of a floating elevator. For this service the floating elevator company makes charges of 0.9¢ per bushel, added to the railroad ex-Lake rate of 5.5¢. This makes 6.4¢ per bushel, all the charges the grain can stand and yet move through New York. Therefore, the New York railroad finds itself compelled to give the services of its stationary land elevator free and also to barge the grain free alongside any steamer within the spacious lighterage limits of the port. The barging is at an admitted minimum cost of 1¢ per bushel. The earnings of the New York Central on grain from Buffalo to New York are 1.9¢ per bushel less than the New York Central (Boston & Albany) to Boston. They are 1¢ less because of the barging done in New York and not done in Boston; 0.9¢ less because 0.9¢ is collected for the

use of the road's stationary elevator in Boston, while the railroad elevator renders the same service free in New York. Not only New York but also Philadelphia delivers free to any liner in port.

Flexibility of New York system. The shipper who uses New York has certain important advantages over the shipper using Boston. The grain sent to New York and put in a New York elevator is available for shipment by any vessel in port at a total charge, from Buffalo, of 6.4¢ per bushel. The grain sent to Boston is available for shipment, at a cost of 6.4¢ per bushel from Buffalo, only by the vessels at the terminal of which the elevator is a part; that is, fewer than one-third of the lines in port, for there are four ocean terminals here—three belonging to the railroads, one belonging to the State at South Boston. For several reasons, the grain dealers appreciate the flexibility with which they can dispose of their export grain in New York, and they miss the same facility at Boston.

"Distress room." Often a parcel of export grain, sent to New York and booked for shipment via a steamer some weeks ahead, has an opportunity to get "distress room" on another steamer to sail at once. "Distress room" means a low freight rate because the steamer has been disappointed in its expectation of filling up with freight, and so will take grain for next to nothing, rather than go out half empty. The exporter re-sells his parcel of grain to the market reached by the boat offering "distress room," ships the grain by that boat, and brings on from Buffalo other grain of the same grade to fill his original engagement. The possibility of such diversion in New York puts a premium on shipments via that port.

Grain for storage. There is a still greater premium

put on sending to New York grain for storage, awaiting sale for export. It is true that Buffalo is the best place for holding grain whose destination is undetermined and Buffalo is used to capacity for that purpose. Wheat held in Buffalo has many chances. It may be sold to Buffalo mills or to a New York City mill; it may be sold for export by any vessel sailing from the whole range of North Atlantic ports, Boston to Baltimore inclusive. They are all reached within three or four days by rail from Buffalo. But Buffalo elevators fill up early each fall. Then there is no doubt as to the desirability of sending wheat to a port which, for a 6.4¢ charge, gives it the choice of shipment via any of the many steamship lines to New York, rather than a port which, for a 6.4¢ charge, gives it the choice of shipment via less than one-third of the few lines at Boston. That is, the inflexibility in the disposal allowed grain in Boston reduces its desirability as a port for storage when stored grain overflows to the North Atlantic port elevators.

Free lighterage of grain should come in Boston. Liners in Boston are entitled to the same treatment they get at Philadelphia and New York: accessibility to grain in any elevator. Boston roads should, first of all, remit half wharfage on grain taken overside at a railroad pier. If the Boston roads should provide in their tariffs for delivery to any line vessel in port upon payment of the 0.9¢ elevation charge—as is provided in the Philadelphia tariffs—this would result in little extra cost to them. Most of the grain moved through Boston would still be transit grain, its steamer of export determined before the grain reached the port. It would therefore, naturally, be put into the elevator belonging to the terminal at which the

carrying vessel docked, and would only in exceptional cases be barged for delivery elsewhere at an added cost to the railroad of 0.625¢. In New York every bushel of export grain must be lightered.[1] In Philadelphia most of it is; soon all the Pennsylvania's Philadelphia grain will be lightered, for the Pennsylvania's new grain elevator is at Girard Point, and there are no line vessels docking within five miles of that location. The sacrifice required of the Boston roads is small in comparison with the importance of the discrimination removed.

East Boston steamers would get Georgian Bay grain. Besides introducing a needed element of flexibility in the disposal of grain brought to Boston, the proposed free lighterage of grain would open to East Boston steamers an important item of export traffic now withheld from them. Perhaps the heaviest movement of traffic from Canadian railroads is export grain from points on Georgian Bay—the lower Canadian Lake ports corresponding to Buffalo in the United States. The Boston & Albany has no through rates on grain from Georgian Bay; this must come to Boston on the Boston & Maine. No grain rates include the absorption of port switching charges, so this grain must be put into Boston & Maine elevators. The East Boston steamers are, therefore, in no position to bid for Georgian Bay grain, which it

1 Recently at New York the Erie, West Shore and New York Central roads have introduced an elevation charge of only 0.5¢ per bushel on grain loaded direct into steamers from the railroad's stationary elevator. This is an exception to the practice of universal lighterage at New York. It is also a practice which gives New York an added advantage over Boston, namely, the possibility of putting such grain on board at New York for 0.5¢ per bushel, compared with 0.9¢ at Boston.

would cost them 1.125¢[1] per bushel more to get aboard than it costs Charlestown steamers. The proposed change would make Canadian grain from Georgian Bay available to steamers docking at East Boston.[2] Grain rates to Boston from Georgian Bay are the same as those from Buffalo.

Summary. The system of switching charges prevailing in Boston has been examined and it has been seen that such inequalities as exist are the result of historical conditions. The Boston oversea lines were attracted by the Boston railroads. The railroads treated the piers at which these lines berthed as part of the local railroad terminal, reached by the Boston rate from all points, local and competitive. No steamship line could berth at the terminal of more than one railroad; its traffic with local points on other roads was subject to a switching charge in addition to the Boston rate. On competitive exports the railroad pier owner levied a switching charge high enough to discourage inland carriage by any one but the pier owner and its connections.

The ideal is to have the port a transportation or delivery unit, all parts of it reached by the same rate from all inland points, in the interest of fairness to both shippers and competing steamship lines. In the case of local New England freight the usual proposal has been that delivery to all piers should be made at

[1] 0.625¢ floatage + 0.5¢ half wharfage.

[2] It should be said that a beginning has been made in free lighterage of grain in Boston. The Boston & Albany and the Boston & Maine make to the Port Directors an allowance sufficient for the Port Directors to lighter grain alongside Commonwealth Pier, from any elevator in the harbor, and deliver the grain to a vessel. A steamer at Commonwealth Pier, therefore, can get grain aboard from any elevator in Boston without extra charge. It is, so to speak, connected with all elevators.

the Boston rate, which now delivers only at the piers of the inland carrier. The objection to this change is that it would be unjust to ask the carrying railroad to absorb into its low near-by rates the switching charges levied by the delivering road in Boston.

The proposition was examined of increasing by 2¢ the low near-by rates, when used for export or import traffic, up to a maximum of 10¢ per 100 pounds; and having these increased rates provide for delivery to or collection from any pier in port. The objection to this is that there are many low commodity rates established to meet specific needs and that these rates ought not to be raised to satisfy a demand to neutralize the whole port in its traffic with near-by points.

It proved to be preferable to leave the near-by situation as it is. However, a consideration of the practice elsewhere, especially at the railroad ports, Baltimore and Philadelphia, and a comparison of the cost of terminal interchange services there and in Boston, made it seem just to ask the Boston roads to serve any pier in the port at the Boston rate, in the case of carload traffic paying 7¢ per 100 pounds or over. This would neutralize and unify the port except for near-by traffic of points within the 7¢ zone. A similar equalization of L.C.L. shipments to and from the port did not appear necessary; and it would probably involve the remittance of wharfage, the chief source of revenue from piers today.

With regard to through traffic, to or from points beyond New England, the situation was also examined. It was seen that the most serious feature of the working of the 4.5¢ switching charge on western freight was that it tended to deprive East Boston piers of the solicitation, in the West, of other trunk lines than

the New York Central. It was suggested that the Boston & Albany reduce this switching charge to 2.5¢, as in the case of non-competitive Boston & Maine exports. This would give the western trunk lines other than the New York Central a livelier interest than they now exhibit in exports for East Boston piers.

It was seen that a special reason has existed for the Boston & Maine and Boston & Albany not absorbing each other's switching on imports. That reason disappeared when the 1912 Import Differential decision announced that the Boston & Maine and Boston & Albany could not continue to apply lower than a 75¢ scale on imports moving west from their docks via the standard routes, in connection with their own lines only. At the present time there is no reason why the Boston & Maine and Boston & Albany tariffs should not be amended so as to provide for reciprocal switching of westbound imports at a rate of 2.5¢, to be absorbed by the carrying railroad. But it appeared that real competition in service could only be had if lighterage were resorted to. The added cost of this, compared with the slight advantage in prospect, made it seem preferable for the Boston & Maine and Boston & Albany each to continue to retain the exclusive carriage of western imports landed at its piers.

It was recommended that "side wharfage," levied by the railroads on freight lightered to vessels docking at a railroad pier, be abolished, as it constitutes a serious hindrance to the efforts of southern coastwise lines to bring southeastern cotton for export to Boston. No such side wharfage is levied on this coastwise export business at New York or Philadelphia, and none by the Pennsylvania Railroad at Baltimore. Side wharfage should also be remitted in the interest

of removing the restrictions placed upon grain moving through this port.

The discrimination against Boston in the matter of terminal charges on export grain has been pointed out. It arises from the fact that parcel lots of export grain are at Philadelphia and New York delivered on any line vessel in the port at the inland rate plus the port elevation charge. In Boston the payment of inland rate and port elevation charge delivers the grain only to vessels berthing at the particular terminal owning the grain elevator in which the export grain is stored.

After doing away with side wharfage, the Boston roads should amend their grain terminal tariffs after the model of the Philadelphia tariffs, and have the elevation charge provide for delivery to line vessels anywhere in the port of Boston. The additional cost to the Boston roads would be slight, as most export grain would continue to be transit grain, booked before arrival and put into the elevator serving the export vessel. But the result would be an added flexibility in the disposition of this transit grain, which would be appreciated by the grain dealers and steamship companies using this port. The moral effect on grain exporters not residing in Boston would be great. At certain periods Boston would become more desirable than at present for the storage of export grain.

Ideal terminal situation impossible under dispersed waterfront ownership. It will be objected that, especially with regard to switching charges, no uniform and comprehensive solution of the port situation is offered. The way is not made clear for the establishment of the port of Boston as a transportation unit. But so long as most of the oversea piers in the port

are parts of separate railroad terminals, the same terminal situation cannot be expected to prevail as under public ownership of piers connected with all railroads by a belt line.

How public ownership could be brought about. Public ownership would abolish certain discriminations against shippers and steamship lines using certain piers—discriminations which will prevail in spite of the best adjustment that can be made under present conditions. Should the State find that it is not possible to bring about, under dispersed ownership of piers, a satisfactory terminal situation in the port, it can buy all railroad piers, as well as approaches to them from the present railroad yards. Supplementing these purchases by the institution of two carfloating routes in the harbor, the State would own all oversea terminals and the equivalent of a belt line connecting them with all railroads.[1] The initial outlay for this extension of State ownership would be very large. It is not impossible that, under efficient management, such a system of State piers could be made self-supporting, without any greater burden on the railroad lines than they now assume in case of traffic moving over their own piers. The experiment should not be made until it proves impossible to have, under present conditions, a terminal situation of substantial fairness. Discussion of the extent and management of such State ownership of oversea terminals must be based on a more detailed examination of physical and operating conditions in the port, and so is reserved for the later section dealing with Operation.

[1] This is pointed out later, in chapter XV.

Boston's main difficulties in rates, not terminal charges. Yet with public ownership and operation of the whole waterfront Boston would not be assured of the development which it desires. Any difficulties in its terminal situation are of minor importance compared with the effect of differential rail rates from the interior favoring Boston's rivals. This inland rate structure, and its effect on the commerce of the port, will now be explained, and a way will be suggested to secure the abolition of the differentials applying to the principal export traffic of the future; namely, Canadian grain and grain products, especially Canadian ex-Lake grain from Buffalo.

B

INLAND RATES

CHAPTER V

THE DIFFERENTIAL CASES

FIXING OF RATES BETWEEN THE WEST AND ATLANTIC PORTS

Boston's main difficulty. As has long been recognized, the main difficulty under which Boston has labored, as far as western freight traffic is concerned, lies in the differential, or lower, export and import rates originally accorded to Philadelphia and Baltimore, and later appropriated by Norfolk, Newport News, Montreal, Portland, St. John and Halifax. The Gulf ports, especially New Orleans, then appeared with inland rates even lower than those of the lowest North Atlantic port. The result is that Boston has been increasingly handicapped in competition for the exports and imports of the West.

Early trunk line competition. The American trunk lines were built to reach the grain fields of the West. The market for the grain, grain products and provisions of the West was not in the still thinly populated East, but in Europe. So the export traffic was the principal traffic of those early railroads. Even as late as 1881[1] the export tonnage in grain alone was 73% of the eastbound tonnage which the American trunk lines carried to Baltimore, Philadelphia, New

[1] Report of Albert Fink on Adjustment of Transportation Rates to the Seaboard, cited in 1905 Differential Case Decision, p. 16.

York and Boston. Originally each of the trunk lines reached only one port. The Baltimore & Ohio reached Baltimore only. The Pennsylvania reached Philadelphia only. The Erie and the New York Central reached New York only. If grain and flour could not be exported via Baltimore, the Baltimore & Ohio could not haul them. If they could not be exported via Philadelphia, the Pennsylvania could not have them to haul. Therefore, the various rail lines waged continual rate wars for the hauling to their respective ports of this controlling export traffic.

Their export rate agreement. It was natural that these railroads should finally seek to come to some agreement, divide the traffic and earn living rates for carrying it. Various differences in rates were agreed upon, but all proved unsatisfactory until, in 1877, the present basis was agreed upon. The competitive West was defined as the territory west of Buffalo and Pittsburgh. On all traffic originating in this territory, Baltimore was allowed to have an export rate 3¢ per 100 pounds, 60¢ per ton, lower than New York. Philadelphia was allowed a rate 2¢ per 100 pounds, 40¢ per ton, lower than New York. These fixed differences were communicated to the rates on domestic traffic and so became weapons used in the commercial struggle between North Atlantic ports for the domestic trade of the American interior.

The railroads were themselves satisfied with this basis, but the merchants of the competing seaports were not. Each community felt that the rate adjustment was unfair to it. In 1880 New York City merchants brought such pressure to bear upon the New York Central that it withdrew from the agreement of 1877, and the most disastrous of all rate wars occurred,

lasting a year. Albert Fink, Trunk Line Commissioner, after an elaborate investigation and report on the subject, recognized the futility of dividing the traffic among the railroads by any system of rate differences, and frankly suggested that the traffic should be divided at the source, before being shipped from the West. This recommendation was never put in force. The arbitration of the railroads' differences and the fixing of relative rates as between the various ports was entrusted to an Arbitration Commission consisting of Senator Thurman, Ex-Senator Washburn and Judge Cooley. The railroads expected that the ports would accept the decision of so eminent a body.

1882 Arbitration Commission. This Arbitration Commission rendered its decision in 1882. The decision was accepted and has been, with modifications, the basis of relative rates ever since. The rate differences of 1877 were re-affirmed; namely, Baltimore 3¢ and Philadelphia 2¢ per 100 pounds under New York on export traffic. Boston was to continue its practice of carrying the same export rates as New York.[1] Westbound domestic rates from all New England have been identical with those of New York, via standard routes. There was less question about import rates, for the import traffic was negligible. On imports the

[1] Though Boston export rates have been the same as New York's, Boston eastbound domestic rates have always been higher. Since 1892 rates on domestic traffic from the West to New England points, including Boston, have been as follows, in cents per 100 lbs., higher than New York, eastbound:

Classes						
I	II	III	IV	V	VI	Commodities
7	6	5	4	3	2	2

Baltimore and Philadelphia rates were to be the following amounts under New York:

	Classes, Cents per 100 lbs.						
	I	II	III	IV	V	VI	Commodities
Baltimore	8	8	3	3	3	3	3
Philadelphia	6	6	2	2	2	2	2

Its justification of differentials. It was declared by the Commission that lower rates to Philadelphia and Baltimore were justified on the cost and distance principle; that is, they were nearer to the West and it cost less to transport freight between these more southern ports and the interior. But the leading justification was on the principle of competition. The Arbitration Commission said that through rates from Chicago to Liverpool, for instance, could not be higher via Baltimore and Philadelphia than via New York and Boston; otherwise no traffic would move via the southern ports. It was found that the average ocean rates from Philadelphia and Baltimore were 2¢ and 3¢ per 100 pounds, respectively, higher than from Boston and New York. That justified a lower inland rate of 3¢ to Baltimore, 2¢ to Philadelphia, in order to make the through rate the same. Baltimore and Philadelphia then had natural approaches from the sea of considerably less depth than those of New York and Boston; in 1882 these natural differences had not been eliminated by government expenditure to the same extent as today. Tramp steamers carrying full cargoes largely handled the grain traffic in 1882. Because of the limited depth of the approaches to Baltimore, they charged about 3¢ per 100 pounds more for taking a cargo of grain from that port abroad than they charged for taking a cargo from New York or Boston.

The tramps for the same reason charged 2¢ per 100 pounds more for taking grain cargoes from Philadelphia than from New York or Boston. This inland rate structure, based on differential ocean rates, went without protest until 1898.

Differential territory. Differential territory, or territory to which these fixed rate differences applied, came to be more exactly defined and to include territory west of a line running west of Buffalo and east of Pittsburgh, Parkersburg and Wheeling; south of the Great Lakes and a line drawn from Chicago to Dubuque; north of the Ohio River; and east of the Mississippi River. Differential territory itself was divided into zones, the New York rate of each zone being a percentage of the Chicago-New York rate. For instance, Pittsburgh was in the 60% zone. The Baltimore eastbound rate was then obtained by subtracting 3¢ from the New York rate of the point in question. Moreover, the differentials were applied to traffic passing through the differential territory en route to the Atlantic seaboard. Grain rates from the Northwest to the seaboard were composed of a rate to Chicago plus the Chicago rate east; hence the regular differential from Chicago was applied. Similarly, flour from west of the Mississippi moved on a combination rate composed of a rate to the Mississippi plus the rate from there east. Cotton from Memphis moved on a combination rate consisting of a rate to an Ohio River crossing, such as Louisville, plus the rate from Louisville to the seaboard.

What led to 1898 Differential Case. In the meantime, the Interstate Commerce Commission had been created, in 1887, and charged with protecting the public against unjust rate discriminations between

persons, communities or commodities. In the years 1882-1898 New Orleans had had its channel deepened and had seen railroads centering at that port reaching out for the oversea business of the Middle West, which the Atlantic ports had always considered as their exclusive territory. The Chesapeake & Ohio Railroad, after building a port at Newport News, demanded and obtained for it a share of western exports. Norfolk and Newport News took the Baltimore rate. Montreal began to make felt its all-water route to the interior and to draw off American as well as Canadian traffic. New York seemed particularly to feel these new competitors. The Erie Canal which, in conjunction with the Great Lakes, had been cheaper than all-rail routes to other ports, found in the nineties a rival it could not meet, in the lower rates brought about by the larger engines, larger trains and improved road-beds of the railroads, combined with the natural advantages of rail transportation. Traffic left the Canal and moved by rail, being distributed among all North Atlantic ports instead of concentrated at New York.

The 1898 decision. Therefore, in 1898, the New York Produce Exchange instituted a complaint against the railroads before the Interstate Commerce Commission, charging that the differential export rates on grain, grain products and provisions unduly preferred Boston, Philadelphia, Baltimore, Newport News and Norfolk as localities to the locality of New York. The Boston Chamber of Commerce appeared at the first hearing, but when it was apparent that New York did not seek a lower rate than Boston, the latter withdrew and the contest was between New York, Philadelphia and Baltimore. New York lost

and the differentials were re-affirmed. It was declared that there was nothing undue in the preference given Baltimore and Philadelphia. That preference was said to be based on distance, cost of transportation and the exigencies of competition.

But the text of the decision resulted in an important modification of the differentials on all-rail grain. The Commission found that the old disadvantage of Philadelphia and Baltimore in the matter of ocean rates on full cargoes of grain had disappeared. The charter rates for the whole "North Atlantic range" of ports were the same; a vessel could be hired to carry a cargo at the same price from New York, Philadelphia or Baltimore. However, the "berth rates" for parcel lots were lower out of New York, via the liners sailing from that port. The Commission stated that the inland differential ought to be abolished in the case of grain shipped in full cargoes, but retained in the case of grain shipped by liners in less-than-cargo lots. It was obviously impossible to distinguish between the two. Half the time the method of ocean carriage was not determined until after the grain reached the seaboard; often grain originally booked by one sort of ocean carrier would be diverted to another. So the Commission did nothing.

1899. All-rail grain differentials cut in two. In the following year, 1899, the railroads, of their own initiative, acted upon the Commission's suggestion that the all-rail grain differential was only just with respect to one of the two classes of grain shipments. The railroads assumed that half the export grain was cargo lots and half parcel lots, and they cut the export all-rail grain differential in two, so that on grain for

export Baltimore was 1.5¢, instead of 3¢ per 100 pounds lower than New York and Boston; and Philadelphia was 1¢ instead of 2¢ lower. The old differentials remained in force on domestic business. This was the first break in the differential structure.

1904. Steel differentials cut in two. The second break also came about by voluntary action of the railroads, and applied to iron and steel articles. When the Lackawanna Steel Company was established at Buffalo, the Pittsburgh mills were alarmed; for the Buffalo rate was 50% of the Chicago-New York rate, while the Pittsburgh rate was 60%. The Pittsburgh mills demanded to be put on a parity with the Buffalo steel rates to the seaboard, largely because of the export market. A solution was found by offering Pittsburgh a reduction by one-half of the amount of the differential. That is, on export iron and steel, New York and Boston were put 1.5¢, instead of 3¢, above Baltimore; 1¢, instead of 2¢, above Philadelphia; and Philadelphia was put 0.5¢, instead of 1¢, above Baltimore.[1] The same reduction in the differentials was made in the case of export iron and steel articles from the Youngstown and Cleveland districts. From Chicago and Detroit, the only steel centers in competitive territory not already mentioned, the full differentials apply. The full differentials continued to apply on all domestic traffic.

Origin of 1905 Differential Case. The next two—and last—changes in the differential structure came as a result of the 1905 Differential Case. In the early months of 1904, the ex-Lake grain rates from Buffalo to Philadelphia, New York and Boston became the

[1] The effect of this was to reduce the Pittsburgh export rates to Boston and New York by 1.5¢ per 100 lbs.

subject of a rate war, rates getting as low as 0.2¢ per bushel. The grain trade of all the seaports was disturbed by the rate fluctuations and the flour millers saw the export of wheat, rather than flour, being forced by these low grain rates, while the export flour rates were not correspondingly reduced. The Merchants Association of New York, joined by other commercial bodies in the seaports, asked the Commission to fix these ex-Lake grain differentials and to review the whole export differential rate structure. Pending the Interstate Commerce Commission's decision, C. C. McCain, Trunk Line Commissioner, arbitrated equal ex-Lake rates to all ports.

Boston had felt the differentials. In 1904-1905, for the first time, Boston entered into the controversy. In 1898 Boston was content to let New York carry on the fight, knowing that any advantages which New York won would be communicated to Boston, which had always carried New York export rates. Until the passage of the Elkins Law in 1903, export and import rates had not been strictly maintained; there was a general feeling that these rates were in the nature of proportionals of through rates to and from foreign destinations, and so not subject to the same strict maintenance given to domestic rates. So when Boston roads needed western business for their steamer lines, they cut rates and got the business. The Elkins Law put an end to that, and Boston felt the effect of the hardened differentials.

Canadian traffic for Canadian routes. The Canadian roads had encouraged the Boston & Maine to believe that Boston would be a large overflow port, particularly in winter, for Canadian grain and grain products. The Boston & Maine had built at Mystic a

grain elevator with a capacity of 1,750,000 bushels, primarily to care for this Canadian business. Then came the Canadian agitation for the development of all-Canadian routes, using St. John and Halifax as winter ports. The Grand Trunk Pacific, a second Canadian transcontinental, was launched. Subsidies to encourage steamship lines between Canadian ports and Great Britain were instituted by the Dominion Government. The Canadian Pacific Railroad, in 1903, acquired fifteen steamers and set about to build more, to handle its own summer business through Montreal, its winter business through St. John. In the early 1900's, when the large Mystic elevator burned down, it was replaced with the present transit elevator, with a capacity of 500,000 bushels.

Formation of steamship consolidations. In 1901-1902 the International Mercantile Marine was formed, an extensive consolidation of lines between the United States and the United Kingdom, with its headquarters in New York. The new combination took in the Leyland Line from Boston to Liverpool and the old Dominion Line from Boston to Liverpool. The latter was called the White Star Line and the two Boston lines were managed in conjunction with the White Star Line to Liverpool from New York, and the American Line to Liverpool from Philadelphia. The Wilson-Furness-Leyland Line from Boston to London was taken in and managed in conjunction with Atlantic Transport Line services from New York, Philadelphia and Baltimore to London. Independent Boston management of these three Boston services disappeared. Independent management had tended to fill the boats at any cost; if western cargo did not come through Boston, these lines did not get it. The new consoli-

dated management probably got the cargo at New York, Philadelphia or Baltimore, if not at Boston. If the International Mercantile Marine Company got cargo at New York, they earned as much as at Boston; if they got it at Philadelphia and Baltimore, they earned more. (See ocean rates, page 58.)

For all these reasons, the Boston Chamber of Commerce took an active part in the 1904-1905 case.

1905 decision reduces flour differentials. In both the 1882 and 1898 decisions it was stated that the adjustments therein sanctioned might not be equitable forever, and that future conditions might require a modification of them. The 1905 decision states, p. 73:

> About the only thing which is made reasonably certain by the statistical tables offered in evidence is that Boston has distinctly lost and that Baltimore and especially Philadelphia have distinctly gained in exports of flour. We are inclined to think that this differential should be made 2¢ at Baltimore and 1¢ at Philadelphia.

This meant a reduction from the former 3¢ at Baltimore and 2¢ at Philadelphia. The reduced differential was accorded to both New York and Boston, to apply on export flour traffic only.

1905 decision fixes ex-Lake grain rates. The other change brought about by the 1905 Case was a fixing of the ex-Lake grain differentials. In the 1898 decision these were barely mentioned as being 1¢ per bushel on wheat and corn, 0.5¢ on barley and oats, in favor of Baltimore and Philadelphia as compared with New York and Boston. In 1898 the Pennsylvania was taking grain only from Erie, the Baltimore & Ohio only from Fairport. Both these Lake ports were of small capacity and the New York lines, monopolizing

the heavy Buffalo traffic, were willing to allow the Baltimore and Philadelphia lines any differential they chose to take on grain through the other Lake ports. But in 1900 the Pennsylvania bought its way into Buffalo. Between then and the 1903 rate war, sometimes the Pennsylvania took a differential to Philadelphia, sometimes not. The Commission, in its 1905 decision, fixed the ex-Lake differential at 0.3¢ per bushel on all sorts of grain, in favor of Baltimore and Philadelphia under New York. (See ex-Lake rates, page 70.) The Boston and New York interests wanted equal ex-Lake rates to all ports on the ground that this ex-Lake grain was a local movement from Buffalo elevators, and so should conform to the Buffalo export rate structure, one of equality to all ports from Baltimore to Boston inclusive. Baltimore and Philadelphia insisted that this grain was grown in differential territory and that they ought not to be deprived of the advantage of their geographical nearness by the fact that the grain moved east by the Lakes instead of all-rail. The Commission considered both arguments as of equal weight. It halved the lower all-rail grain differential, applying to Philadelphia; namely, 1¢ per 100 pounds, 0.6¢ per bushel of wheat. This halving produced the 0.3¢ ex-Lake export grain differential already referred to. By a later modification of this decision the differential on barley and oats was reduced to 0.2¢ per bushel; wheat, corn and rye remaining at 0.3¢.

Apart from its action in reducing the flour differentials and fixing ex-Lake grain rates for export, the Commission refused to modify the differential structure.

In 1904-1905, no evidence was offered with regard

to import rates and the Commission did not pass upon them.

Why imports figured in 1912 Case. The differential question rested, at least so far as legal proceedings were concerned, from 1905 to 1910. When re-opened, the question was precipitated by action of the Boston railroads: action with regard to import, not export, traffic. Even as late as the voluminous 1905 Proceedings, imports had formed no part of the contention. Between 1905 and 1910 the situation changed. Imports from Europe to this country had always been light; the steamers' westbound cargo had been largely immigrants. During the period 1905-1910, heavy imports for the manufacturing Middle West grew rapidly, such as hides, ferromanganese, burlaps, kainit, clay, palm oil, brewer's rice, seeds, etc. From all leading European ports the ocean rates to all outports, Montreal to Norfolk, were made equal. Therefore the inland rate determined the through cost, and Boston railroads saw themselves handicapped, in soliciting this business, by higher inland and so higher through rates. The Boston roads were, by the Elkins and Hepburn Laws and by Rulings of the Interstate Commerce Commission, prevented from cutting import rail rates.

At the same time the movement of import commodities through all North Atlantic ports was being diminished by the competition of New Orleans and Montreal. These two ports saw that further extension of regular ocean lines, to carry the cotton of the Gulf and the grain of Canada, depended upon getting imports for the ships to carry back from abroad. So the railroad lines serving Montreal and New Orleans

offered extraordinarily low import rail rates into middle western territory. Montreal took a 59¢ import scale,[1] all-rail to Chicago, and a Lake-and-rail import scale of 41¢. The Gulf lines made such inroads on western imports that, in 1907, a private Arbitration Commission (Messrs. Todd and Knott) was called upon to fix a set of import differentials, under the New York rates, applying from Gulf ports to points reached by Gulf railroad lines. This Commission arbitrated that, as to Cincinnati, and as to practically all territory west of and including Louisville, Indianapolis and Chicago, the import rates from New Orleans and other Gulf ports should be less than the New York rates by the following amounts, in cents per 100 pounds:

Classes						
I	II	III	IV	V	VI	Commodities
18	18	12	8	6	6	6

1909. Boston takes Baltimore import rates. In view of all these conditions, the Boston roads felt that their import rates were too high, and in 1909 dropped to the Baltimore basis, 67¢ scale and 3¢ below New York on commodities. Until 1901 the Boston roads had carried a 65¢ scale to the West for imports, on commodities 3¢ below New York; Boston likewise carried 70¢ as a differential domestic scale. The trunk lines in 1901 persuaded the Boston roads to advance their import rates to the 70¢ domestic scale, commodities 1¢ under New York. The Boston roads, however,

[1] This means: a set of import tariffs of which the rate on first-class goods was 59¢ per 100 pounds. The New York scale was 75¢ per 100 pounds, Philadelphia 69¢, Baltimore 67¢. The Boston import rates are described later.

reserved the right to revert to the 65¢ scale if they later found it necessary to do so.

Rate war. Referred to I. C. C. for arbitration. Therefore, the Boston roads considered it only a partial exercise of their rights when, in June, 1909, they published Baltimore import rates: a 67¢ scale for classes, and commodity rates 3¢ below New York. The roads from other ports met this rate reduction and Boston retaliated, the Boston rates finally getting down to 58¢, first class. After fruitless conferences between railroad officials of the various lines, and between representatives of commercial organizations of various ports, the adjustment of import rates was left to the Interstate Commerce Commission as arbitrators. New York refused to join the agreement to abide by the arbitration, but instituted a formal complaint, charging that New York was illegally discriminated against because of the lower export and import rates applying to and from Baltimore, Philadelphia and Boston. Boston intervened in the formal complaint and asked that it be given export rates equal to Baltimore, just as it was seeking Baltimore's import rates in the arbitration. In 1911 the Commission heard together the export and import cases, the formal complaint and the arbitration, and decided them in 1912.

1912 decision takes away Boston's 70¢ scale. In the 1912 decision, the *status quo* was ordered maintained all along the line, with respect to both exports and imports, except that Boston's direct (standard) routes to the West lost their 70¢ import scale. As arbitrators the Commission was asked to decide whether Boston should remain at the Baltimore 67¢ scale, or go back to its 70¢ scale. In deciding the

formal complaint, the Commission found that the Boston standard lines could not legally take lower than the New York import rates to the West, a 75¢ scale first class, and commodity rates 3¢ higher than Baltimore. The Boston interests succeeded in obtaining a rehearing of the case. They brought out that Boston lines had always had at the most a 70¢ scale applying from the wharves of the Boston initial carrier. They explained that the terminal expenses at Boston, where imports were loaded from the ships to the cars, were lower than in New York, where a lighter must float freight between the water and land carriers; and therefore lower rates were justified to the West from Boston. They brought out that the American Express Company, foreign agents of the Merchants Despatch routes (New York Central and Boston & Albany or Boston & Maine), had built up Boston's import business to the West and would lose interest in it if the 70¢ scale were withdrawn from Boston's New York Central routes to the West.[1]

I. C. C. would not reconsider. The Commission did not accept these contentions. The best it would do was to say that differential (round-about) routes from Boston to the West, which carried a 70¢ scale on domestic traffic, might apply the same scale on import traffic, in order to obviate the necessity of clearing import traffic at Boston if it was to go west at 70¢ rates. Boston standard routes, which, pending the rehearing described, had not advanced their import rates to the New York 75¢ scale, were ordered to do so. The New York trunk lines, upon whom the Boston standard lines were dependent for connection

[1] Some further aspects of the present Boston import situation are discussed in the second half of Chapter III.

with the West, were ordered to cease to be parties to import rates from Boston lower than New York rates. The New York 75¢ scale was published for Boston standard routes, carrying with it commodity rates 3¢ higher than Baltimore.

CHAPTER VI

EFFECT OF DIFFERENTIAL RATES

Effect on Boston's import trade. The result of this 1912 decision was practically to close the two Merchants Despatch routes over which most Boston imports to the West had been moving; namely, the Boston & Albany-New York Central-Lake Shore route, and the Boston & Maine-West Shore-Michigan Central route. The American Express representatives abroad could no longer offer foreign shippers these direct routes west at the 70¢ import rate scale. The only New York Central route with a 70¢ domestic scale west from Boston, and hence qualified to take the 70¢ import scale, was a roundabout route via the Rutland-New York Central, up through Vermont and northern New York. The Rutland is reached by the Boston & Albany at Chatham, by the Boston & Maine at Bellows Falls.[1] This is the route upon which Boston is now largely dependent for the carriage of western imports secured abroad to move via Boston by the leading soliciting organization working for this port.

Boston marooned with high import rates. Other differential routes west are Boston & Maine-Grand Trunk, connecting at White River Junction; and Boston & Maine-Canadian Pacific, connecting at Newport, Vt. But the foreign solicitors for the Grand Trunk and Canadian Pacific Railroad are not working for imports via Boston; each of these railroads has

[1] For these routes see Maps II and III, following text.

a summer and winter port of its own, and the Canadian roads are putting forth every effort to move American imports via Canadian ports in order to attract there liners to carry away the great volume of Canadian exports. To attain this purpose, the Baltimore rates to the West, 3¢ below New York, are published on commodities from all Canadian ports; Portland and St. John publish the Baltimore class import rates, 67¢ scale, while Montreal and Quebec have a 59¢ scale of import class rates. Particularly in the summer, when the St. Lawrence is open, the competition of the Canadian ports is severe. Montreal is served by such liners from England as the "Empress of Britain," the "Alaunia," the "Andania," the "Laurentic," the "Megantic," the "Alsatian" and "Calgarian," built to hold passenger travel, but freight carriers as well. With these boats offering on western freight the same ocean rates as the boats to Boston, also offering superior ocean service, connecting with the fast freight service from Montreal to the West, which, by direct routes, carries lower rates than even the Boston differential routes—Boston is exposed to a class of competition on the north to which the Interstate Commerce Commission paid little attention in its 1912 decision.

The outlook for western imports via Boston. With regard to imports for the competitive West, therefore, the outlook of Boston is not bright. The situation is briefly summarized as follows: All the ports except New York have equal ocean import rates on business for the West.[1] Because of the great volume of imports

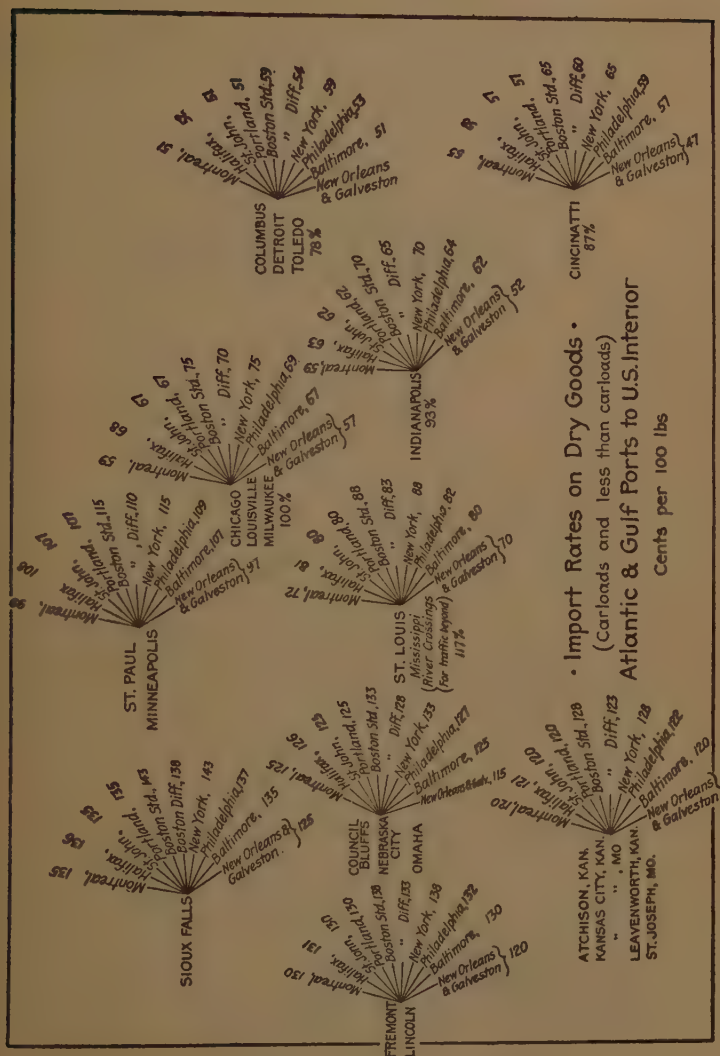
[1] See letters from foreign steamship managers, confirming this, in Import Exhibits 6a-6f of Boston Chamber of Commerce in the last Differential Case.

for New York proper seeking the New York services, rates on through business are made higher on the New York boats, in order to induce the flow of through traffic via the outports. Boston has, from Great Britain, better ocean service[1] than Baltimore and Philadelphia, but no better than the Canadian ports. From Hamburg, Rotterdam and Antwerp, Boston has the best service; from Bremen, Baltimore has the best. Boston's advantage in ocean service is removed by its inferior inland service, due to its dependence upon roundabout "differential" rail routes, while its competitors can use direct rail routes. Finally, these direct rail routes of Boston's outport competitors have lower rail import rates than Boston and so—ocean rates being equal—offer lower through rates than Boston from the foreign port to the American interior.

Coarse type of import freight. The bulk of import commodities carried on freight liners is of a coarse type, influenced by slight differences in through rates. In 1913, according to the reports of the trunk lines, about 800,000 tons of import traffic from Europe, Asia and Africa were forwarded from Atlantic ports to points beyond the western trunk line termini: Pittsburgh, Erie, etc. Over 60% of this movement consisted of the following commodities:

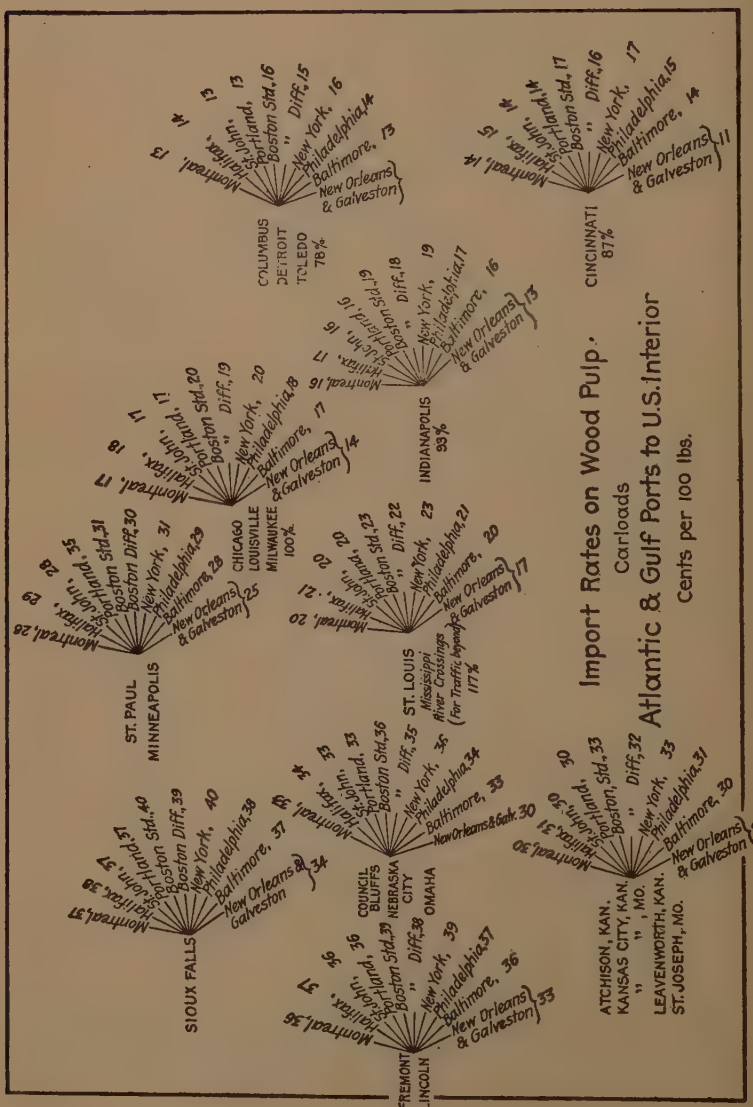
Clay
Fish and herring
Green hides
Pyrites
Ferromanganese
Magnesite and magnesite ore
Rags and waste paper
Vegetable oils
Muriate of potash
Ore (chrome, iron, etc.)
Wood pulp
Brewer's rice
Burlaps.

[1] More frequent and swifter service.



Illustrations of relative import rates. In order to illustrate the relative import rates between Atlantic or Gulf ports and the leading western centers, such

rates applying to dry goods and wood pulp are given on this and the preceding page, in diagram form. Dry



goods move on first-class rates, and hence may be taken as typical of the class import rates.

Boston's handicap. It will be observed that, in the case of dry goods, taking Chicago as a typical inland point, the Boston differential import rate is 5¢ lower than the Boston standard import rate, while the other ports have standard rates lower than Boston's differential rates by the following amounts:

	Cents per 100 lbs.
Philadelphia and Halifax	1
Baltimore, St. John, Portland	3
Montreal	11
New Orleans and Galveston	13

With regard to wood pulp to Chicago, the differences absolutely are not so great, but are more effective because such a low class commodity is more sensitive to rate differences. The Boston differential rate is 1¢ below Boston standard, and the other outports are lower than Boston differential by the following amounts:

	Cents per 100 lbs.
Philadelphia and Halifax	1
Baltimore, St. John, Portland	2
Montreal	2
New Orleans and Galveston	5

Western imports mainly a railroad problem. Fortunately, Boston is not so dependent upon the West for the absorption of its imports as for the furnishing of its exports. The difficulty in handling western imports via this gateway is a more serious one for the Boston railroads than it is for the port of Boston. These railroads must move west, empty, a

surplus of box cars that have come east with raw materials for New England industries and food for the New England population. The westbound merchandise manufactured by this population is high in value and pays high rates, but is small in bulk and fills few cars. For instance, in the last Differential Case it was testified that in December, 1912, 68.7%[1] of the westbound box car movement of the Boston & Albany consisted of empties. This was described as the typical monthly percentage for the Boston & Albany. It may also be considered to be about the average of the other New England roads. Under these circumstances every ton of imports is something to put in a car that will otherwise go west empty; and an additional handicap to the carrying of western imports by the Boston roads becomes a matter of the most vital concern to them. From the viewpoint of car loading, hindrances to the movement of western exports via Boston mean merely preventing the Boston roads from bringing here, at low competitive rates, more cars to be hauled back empty.

The port needs exports. With the port of Boston, the case is different. The same New England industrial population which brings into New England cars for which it is difficult to find return loads, also brings to Boston, carrying imports, boats for which it is hard to find enough outward cargo. The port can trust to the development of New England to fill the ships inbound and is heavily dependent upon the West only for export cargo.

Steady growth of imports here. The growth of imports at Boston during the last ten years has

[1] Not including stock cars or refrigerator cars. (Letter of H. M. Biscoe, Traffic Manager, Boston & Albany Railroad, p. 2605 of Hearings.)

reflected the steady industrial expansion of New England. This growth has been more marked than that of Boston's leading outport competitors. The comparative figures follow:

IMPORTS AT LEADING ATLANTIC AND GULF PORTS.
CALENDAR YEARS 1903-1913 INCLUSIVE

In Millions of Dollars[1]

Year	Montreal	Boston	Phila.	Balto.	New Orleans	New York
1913 . .	154	135	92	36	83	1,012
1912 . .	149	151	93	28	83	1,068
1911 . .	130	116	81	28	68	895
1910 . .	114	121	90	32	61	919
1909 . .	97	127	78	27	54	892
1908 . .	80	89	57	24	41	650
1907 . .	106	123	81	36	44	830
1906 . .	89	110	72	35	45	780
1905 . .	80	106	68	25	22	713
1904 . .	76	86	54	19	36	631
1903 . .	79	83	56	25	30	698

Canadian and in-bond imports. The foregoing figures do not include the imports at Boston for Canada, in-transit, nor imports at Boston forwarded to the American interior, for appraisal. During the last five years this through business, unrecorded above, averaged $23,000,000[2] at Boston, about equally divided between imports for Canada and shipments in bond to the U. S. interior.

Leading Boston imports. The leading items of Boston's import trade indicate clearly their New

[1] U. S. Customs figures, reprinted in annual report of Boston Chamber of Commerce. Montreal figures from Board of Trade Report.

[2] 1913 Report of Directors of the Port of Boston, p. 95.

England destination. These leading items, during the last six years, have been as follows:

PRINCIPAL COMMODITIES OF IMPORT AT BOSTON FOR SIX YEARS[1]

	1913	1912	1911
Fibres and vegetable grasses and products	23,400,000	18,100,000	13,700,000
Wool	20,000,000	22,500,000	12,200,000
Hides and skins	19,800,000	27,100,000	17,500,000
Cotton and cotton mfres.	16,700,000	20,300,000	19,500,000
Sugar	8,100,000	10,700,000	8,500,000
Chemicals, drugs and dyes	5,000,000	5,400,000	5,300,000
Wood and wood mfres.	5,000,000	4,000,000	3,600,000
	1910	1909	1908
Fibres and vegetable grasses and products	14,500,000	14,600,000	13,700,000
Wool	20,100,000	33,100,000	13,600,000
Hides and skins	14,300,000	15,400,000	8,400,000
Cotton and cotton mfres.	15,100,000	13,800,000	12,000,000
Sugar	9,500,000	7,000,000	8,000,000
Chemicals, drugs and dyes	6,200,000	6,300,000	3,900,000
Wood and wood mfres.	3,200,000	3,000,000	2,600,000

These imports are for New England. The hides and skins are for Massachusetts tanneries, later the boot and shoe factories of Lynn, Brockton and Haverhill. Wool is for Lawrence. "Cotton and cotton manufactures" consist largely of Egyptian cotton, via Liverpool, for New Bedford and Fall River. "Fibres and vegetable grasses" are jute for the bagging factories at Ludlow, hemp for the linen thread mills at Webster, sisal for the cordage works at Plymouth. Sugar is for the refineries in Boston harbor; "chemicals, drugs and dyes" are largely raw materials for Boston's chemical and fertilizer works.

New England's demand grows steadily. New England's industrial growth has been so constant that it

[1] From annual reports of Boston Chamber of Commerce.

can be relied on in the future to demand ships full of imports. That industrial growth is measured by the last three industrial censuses: in 1899, 1904 and 1909.

INDUSTRIAL GROWTH OF NEW ENGLAND STATES,[1] 1899, 1904, 1909

Year	No. of Plants	Capital Employed	Workmen Employed	Raw Material Used	Value of Product
1909	23,351	$2,503,854,000	1,101,290	$1,476,297,000	$2,670,650,000
1904	22,279	1,870,995,000	940,752	1,116,273,000	2,025,999,000
1899	22,576	1,507,630,000	———	994,037,000	1,660,348,000

Percentage of imports destined west. In 1904, 75% of Boston's imports were for New England, 25% for the competitive West.[2] For the year ending June 30, 1911, the situation was that a still smaller percentage of Boston imports was destined to competitive territory. The import tonnage hauled by the railroads during that year had the following distribution:[3]

DISTRIBUTION OF RAILROAD IMPORT TONNAGE VIA BOSTON, YEAR ENDING JUNE 30, 1911

Roads	To Points West of Buffalo	To Buffalo[4] and Points East	Total
	%	%	%
B. & A. . .	21.4	78.6	100
B. & M. . .	22.1	77.9	100
Average . .	21.9	78.1	100

Except burlaps, western tonnage small. The percentage of western imports to all imports *landed at*

[1] Bulletin of Census Bureau on Manufactures in United States, 1910.

[2] Testimony of Mr. Preston of Boston, p. 2684 of Hearings in 1905 Differential Case.

[3] Import Exhibit 8 of Boston Chamber of Commerce in 1912 Differential Cases.

[4] Rates from all ports to Buffalo are the same.

Boston would be still smaller, for the percentages given refer only to imports hauled by rail; they do not regard the import tonnage teamed away from Boston piers, nor the very considerable tonnage handled by lighter to chemical works and fertilizer works in the harbor. Moreover, one item, burlaps, constituted 55%[1] of the imports for the West forwarded from Boston in the years 1908, 1909, 1910, 1911 (six months). In 1913 burlaps with 73,983 tons furnished 51% of the 144,743 tons of imports forwarded west from Boston.[2] Burlaps are brought from Calcutta by a single line of steamers, which are attracted to Boston by imports of jute for the bagging factory at Ludlow. The typical British and European liners send west a smaller percentage than 21.9% of the tonnage landed at Boston. For instance, the 16 steamers of the Holland-American Line in 1910 had their cargo distributed as follows:

DISTRIBUTION OF IMPORTS OF HOLLAND-AMERICAN LINE THROUGH BOSTON, 1910[3]

	Local	Western States	Canada	Total
Tons	15,703	2,179	1,310[4]	18,562
Percentage	80	12	8	100

That is, Boston's imports now are only to a slight degree destined to the West, and the port cannot suffer heavily even if the facility of reaching the West with

[1] From trunk line statistics; the totals of Boston imports for the West being published in Import Exhibit 3 of Boston Chamber of Commerce, in the 1912 Cases.

[2] p. 148 of 1913 Report of Philadelphia Chamber of Commerce.

[3] Import Exhibit 15 of Boston Chamber of Commerce, 1912 Differential Cases.

[4] Including 1,000 tons of sugar on one ship.

imports is impaired by the unexpected decision in the Import Differential Case. The market for Boston imports has long been New England; and it is a market that can be confidently counted on for the future.

New England exports insufficient. The manufactures of New England, to be shipped east by steamer as well as to be shipped west by rail, are high in value, but small in bulk. Boots and shoes, rubber goods, machine tools, leather, electrical and shoe machinery do not fill ships. New England's only two bulky exports are apples in the fall and early winter; and cotton waste and rags in bales from the cotton mills, which move fairly constantly throughout the year.

Western exports needed. To fill ships are required the grain, grain products, provisions, agricultural machinery, cotton and tobacco of the West. In the 1905 Differential Case it was testified (Hearings, p. 2685) that 80-85% of Boston's exports came from competitive territory. More detailed figures are available for a later date, the year 1911.

PERCENTAGE DIVISION OF DOMESTIC EXPORT TONNAGE VIA BOSTON, YEAR ENDING JUNE 30, 1911[1]

	From New England	From U. S. Points other than New England		
Roads	%	Grain	Other Traffic	Total
B. & A.	15.1	44.6	40.3	100%
B. & M.	26.4	25.5	48.1	100
Average	22.1	32.7	45.2	100

[1] Export Exhibit 25 of Boston Chamber of Commerce in 1912 Differential Cases.

Outports depend on agricultural produce. All ports but New York have been dependent on the export of agricultural produce: wheat, corn, flour, live animals and provisions. Boston, because of its northerly latitude and the cool water encountered immediately out of its harbor, has always been a favored port for the export of live animals and provisions. The natural advantages of Boston in this respect created a premium in favor of Boston shipment, which offset the differential. Moreover, Boston had a heavy steamship tonnage to Liverpool, the gateway of the North English industrial district, which is the largest consumer of imported foodstuffs in the world. Now the United States is on the way to become an importer rather than an exporter of cattle and provisions. Boston suffers particularly. It is the loss of these two items of traffic, still uncompensated, which accounts for the unsatisfactory showing of Boston's export trade. This is evident by a glance at the leading items of Boston's export:

PRINCIPAL DOMESTIC COMMODITIES EXPORTED AT BOSTON, 1904 AND 1913, CALENDAR YEARS

	1913	1904
Provisions	$18,000,000	$37,000,000
Live animals	200,000	11,000,000
Cotton and cotton mfres.	12,000,000	13,000,000
Leather and leather mfres.	11,000,000	12,000,000
Breadstuffs	9,000,000	12,000,000
Iron and steel	5,000,000	5,000,000

Exports of North Atlantic ports. The course of Boston's export trade, compared with that of its leading competitors, is shown in the following tabulation:

EXPORTS AT LEADING ATLANTIC AND GULF PORTS

In Millions of Dollars

Calendar Years	Montreal	Boston	Phila.	Balto.	New Orleans	Galveston	New York
1913	99	71	72	117	178	251	928
1912	88	66	73	101	171	289	866
1911	71	74	71	95	154	197	801
1910	72	69	66	73	155	202	705
1909	76	73	81	79	147	182	628
1908	80	84	96	82	152	202	637
1907	85	105	107	90	165	197	683
1906	90	99	88	108	168	189	622
1905	74	94	71	104	144	150	559
1904	58	88	67	84	147	127	505
1903	71	86	73	84	150	144	516

Effect of decrease in agriculturals. Excepting New York, none of the Atlantic ports shows a steady development which can satisfy them. Montreal will grow steadily because of the uninterrupted expansion of Canadian grain exports. New Orleans and Galveston are cotton ports and are rising as the center of cotton production shifts from the Southeast to the Southwest, especially Texas. The difficulties of the American North Atlantic ports lie in the fact that the United States is consuming the agricultural production upon which these ports have relied. Cotton, the only agricultural export which has maintained its volume during the last ten years, continues to move through the adjacent ports of the South Atlantic and the Gulf. This decrease in the export of our foodstuffs is too well known to need illustration. The value of United States exports still grows, but it is because manufactures have taken the place of raw products. In 1903 manufactures were 33.48% of our exports; in 1913 manufactures were 48.09%. In

competition for a fair share of such foodstuffs as are still exported, and, to a smaller degree, for the extensive manufactured exports of the Middle West, Boston is handicapped by the rail differentials, now strictly maintained.

Measure of differential rates. It will be recalled that the export rates from the territory west of Buffalo and Pittsburgh, including Pittsburgh but not Buffalo, are the same to New York and Boston, and lower to Philadelphia and Baltimore by the following amounts:

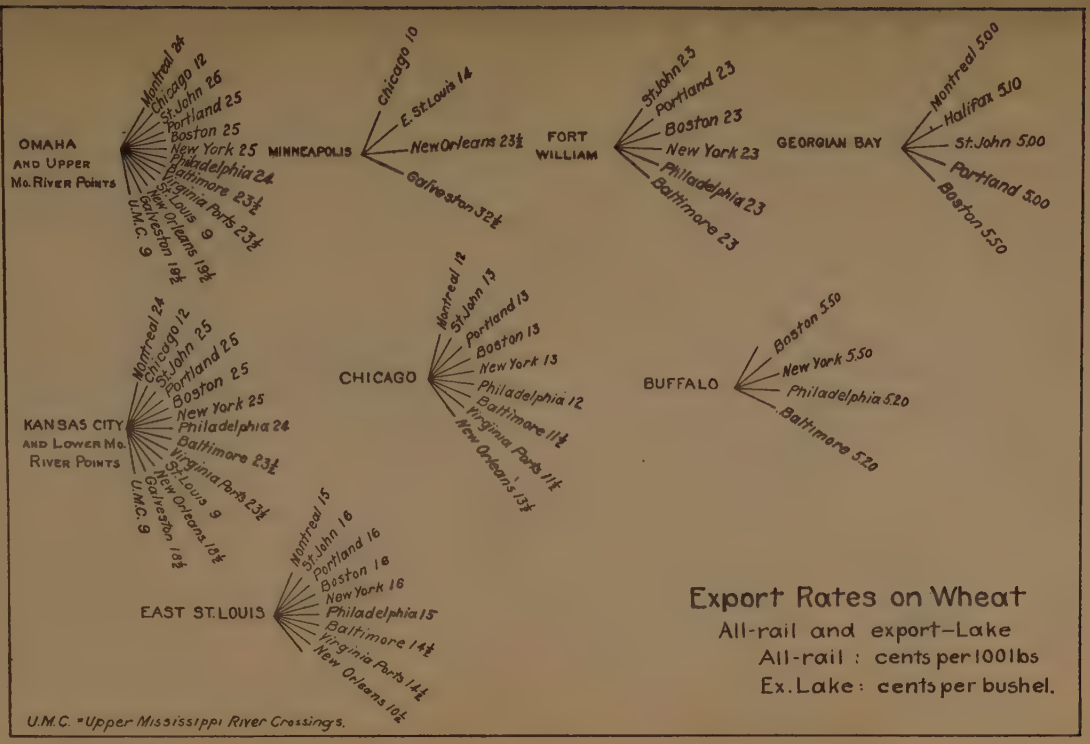
AMOUNTS BY WHICH PHILADELPHIA AND BALTIMORE EXPORT RATES ARE LOWER THAN THOSE OF NEW YORK AND BOSTON FROM THE WEST

	Export rates to Phila. lower by	Export rates to Balto. lower by
Export traffic on class rates	2¢ per 100 lbs.	3¢ per 100 lbs.
Grain, all-rail. (Also steel[1])	1¢ per 100 lbs.	1.5¢ per 100 lbs.
Wheat, corn, rye, ex-Lake	0.3¢ per bu. 0.5¢ per 100 lbs.	0.3¢ per bu. 0.5¢ per 100 lbs.
Barley and oats, ex-Lake	0.2¢ per bu. 0.4¢ per 100 lbs.	0.2¢ per bu. 0.4¢ per 100 lbs.
Flour	1¢ per 100 lbs.	2¢ per 100 lbs.
All other traffic on commodity rates	2¢ per 100 lbs.	3¢ per 100 lbs.

The export rates on grain, flour and other grain products, and provisions, are given in diagram form on the three following pages. They suffice to illustrate the export differential rate structure.

Effect of differential on tramps. There are two effects of these differentials: one effect on tramp vessels and one on liners. A tramp is a steamer that is as a rule engaged in carrying full cargoes of the bulky commodities that move in the world's commerce: cotton, wool, grain, saltpetre, lumber, etc. The tramp

[1] See p. 92.

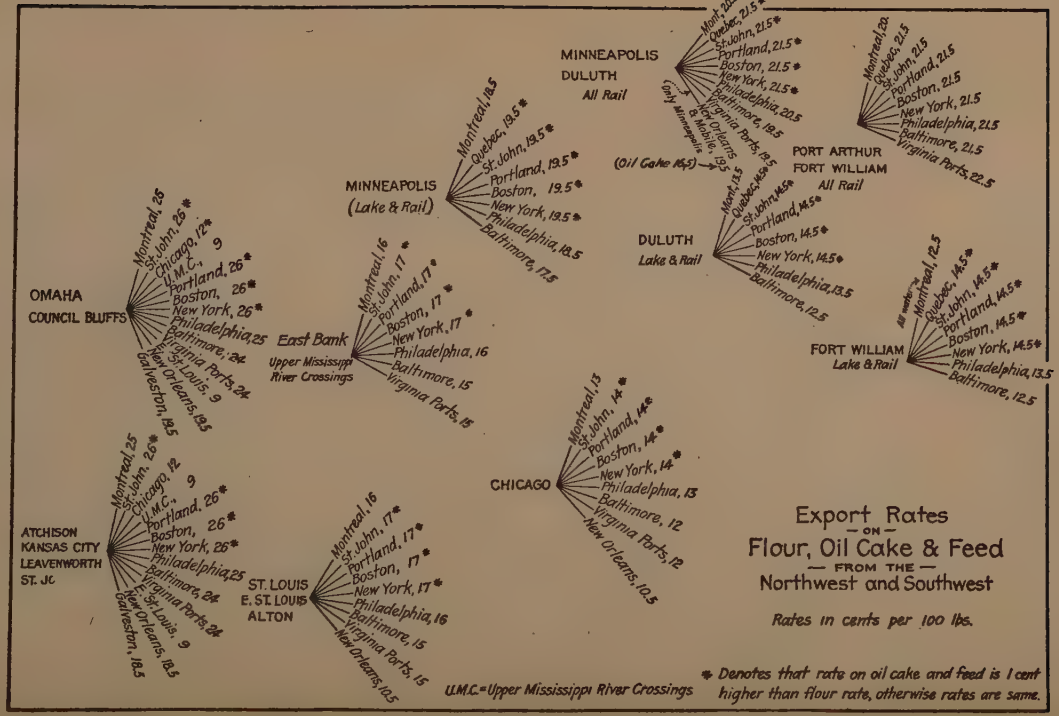


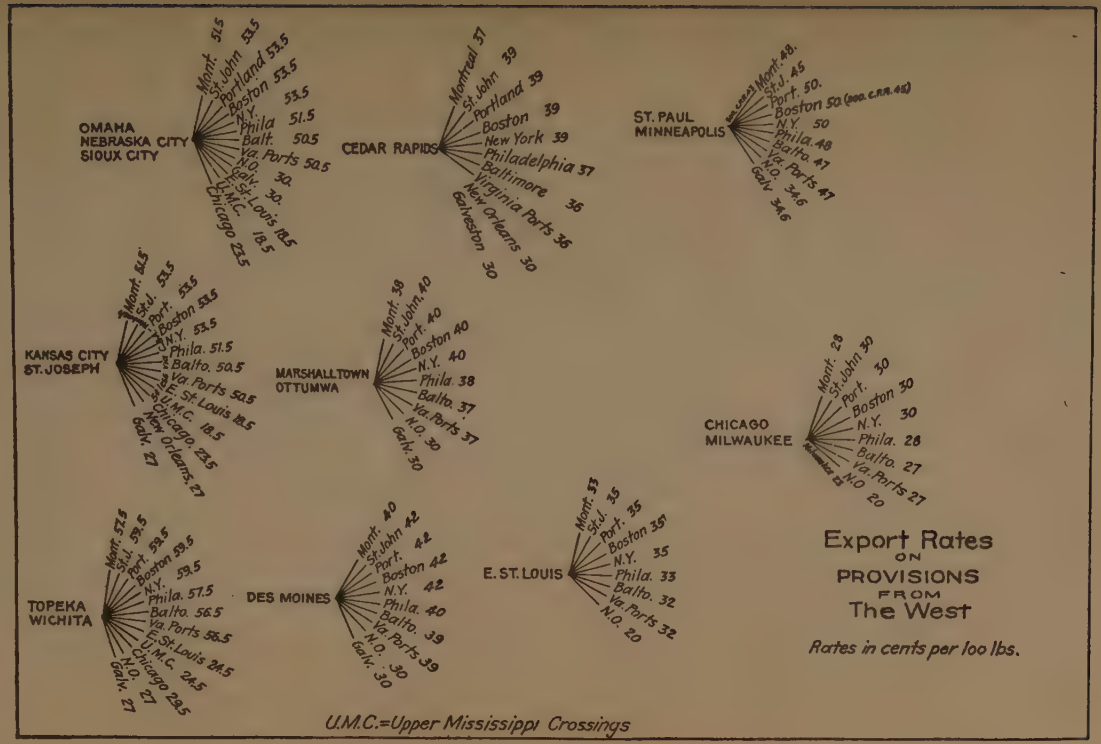
Export Rates on Wheat

All-rail and export–Lake

All-rail : cents per 100 lbs

Ex. Lake : cents per bushel.


MINNEAPOLIS
DULUTH
All Rail
Mont. 20.5
Quebec, 21.5*
St. John, 21.5*
Portland, 21.5*
Boston, 21.5*
New York, 21.5*
Philadelphia, 20.5
Baltimore, 19.5
Virginia Ports, 19.5
New Orleans, 19.5
Only Minneapolis & Duluth
Mobile, 25
(Oil Cake 14.5)
Montreal, 20
Quebec, 21.5
St. John, 21.5
Portland, 21.5
Boston, 21.5
New York, 21.5
Philadelphia, 21.5
Baltimore, 21.5
Virginia Ports, 22.5
PORT ARTHUR
FORT WILLIAM
All Rail
MINNEAPOLIS
(Lake & Rail)
Montreal, 18.5
Quebec, 19.5*
St. John, 19.5*
Portland, 19.5*
Boston, 19.5*
New York, 19.5*
Philadelphia, 18.5
Baltimore, 17.5
DULUTH
Lake & Rail
Mont. 13.5
Quebec, 14.5*
St. John, 14.5*
Portland, 14.5*
Boston, 14.5*
New York, 14.5*
Philadelphia, 13.5
Baltimore, 12.5
OMAHA
COUNCIL BLUFFS
Montreal, 25
St. John, 25*
Chicago, 12*
U.M.C., 9
Portland, 26*
Boston, 26*
New York, 26*
Philadelphia, 25
Baltimore, 24
Virginia Ports, 24
St. Louis, 9
New Orleans, 18.5
Galveston, 18.5
East Bank
Upper Mississippi
River Crossings
Montreal, 16
St. John, 17*
Portland, 17*
Boston, 17*
New York, 17*
Philadelphia, 16
Baltimore, 15
Virginia Ports, 15
FORT WILLIAM
Lake & Rail
All water
Montreal, 12.5
Quebec, 14.5*
St. John, 14.5*
Portland, 14.5*
Boston, 14.5*
New York, 14.5*
Philadelphia, 13.5
Baltimore, 12.5
CHICAGO
Montreal, 13
St. John, 14*
Portland, 14*
Boston, 14*
New York, 14*
Philadelphia, 13
Baltimore, 12
Virginia Ports, 12
New Orleans, 10.5
ATCHISON
KANSAS CITY
LEAVENWORTH
ST. JO.
Montreal, 25
St. John, 25*
Chicago, 12
U.M.C., 9
Portland, 26*
Boston, 26*
New York, 26*
Philadelphia, 25
Baltimore, 24
Virginia Ports, 24
St. Louis, 9
New Orleans, 18.5
Galveston, 18.5
ST. LOUIS
E. ST. LOUIS
ALTON
Montreal, 16
St. John, 17*
Portland, 17*
Boston, 17*
New York, 17*
Philadelphia, 16
Baltimore, 15
Virginia Ports, 15
New Orleans, 10.5
Export Rates
— ON —
Flour, Oil Cake & Feed
— FROM THE —
Northwest and Southwest
Rates in cents per 100 lbs.
U.M.C. = Upper Mississippi River Crossings
* Denotes that rate on oil cake and feed is 1 cent higher than flour rate, otherwise rates are same.


OMAHA
NEBRASKA CITY
SIOUX CITY
Mont. 51.5
St. John 53.5
Portland 53.5
Boston 53.5
N.Y. 53.5
Phila 51.5
Balt. 50.5
Va. Ports 50.5
N.O. 30.
Galv. 30.
E. St. Louis 18.5
U.M.C. 18.5
Chicago 23.5
CEDAR RAPIDS
Montreal 37
St. John 39
Portland 39
Boston 39
New York 39
Philadelphia 37
Baltimore 36
Virginia Ports 36
New Orleans 30
Galveston 30
ST. PAUL
MINNEAPOLIS
Mont. 48.
St. J. 45
Port. 50.
Boston 50 (300. C.R.R. 45)
N.Y. 50
Phila. 48
Balto. 47
Va. Ports 47
N.O. 34.6
Galv. 34.6
KANSAS CITY
ST. JOSEPH
Mont. 51.5
St. J. 53.5
Port. 53.5
Boston 53.5
N.Y. 53.5
Phila. 51.5
Balto. 50.5
Va. Ports 50.5
E. St. Louis 18.5
U.M.C. 18.5
Chicago. 23.5
New Orleans. 27
Galv. 27
MARSHALLTOWN
OTTUMWA
Mont. 38
St. John. 40
Port. 40
Boston 40
N.Y. 40
Phila. 38
Balto. 37
Va. Ports 37
N.O. 30
Galv. 30
CHICAGO
MILWAUKEE
Mont. 28
St. John 30
Port. 30
Boston 30
N.Y. 30
Phila. 28
Balto. 27
Va. Ports 27
N.O 20
TOPEKA
WICHITA
Mont. 57.5
St. J. 59.5
Port. 59.5
Boston 59.5
N.Y. 59.5
Phila. 57.5
Balto. 56.5
Va. Ports 56.5
E. St. Louis 24.5
U.M.C. 24.5
Chicago 29.5
N.O. 27
Galv. 27
DES MOINES
Mont. 40
St. John 42
Port. 42
Boston 42
N.Y. 42
Phila. 40
Balto. 39
Va. Ports 39
N.O. 30
Galv. 30
E. ST. LOUIS
Mont. 33
St. J. 35
Port. 35
Boston 35
N.Y. 35
Phila. 33
Balto. 32
Va. Ports 32
N.O. 20
Export Rates
ON
PROVISIONS
FROM
The West
Rates in cents per 100 lbs.
U.M.C.=Upper Mississippi Crossings

is generally chartered for one voyage by a single shipper who is able to accumulate a full cargo of one such commodity. For the same charter rate, a tramp vessel will come to any of the ports from Hampton Roads to New York inclusive, often Boston[1] as well, in order to take on export cargo. The leading items of American exports moving in cargo lots are cotton and grain; the latter moves largely from the North Atlantic ports. Insurance rates are the same on the hulls of the same class of vessels using any or all of these American ports.

Through rates lower via differential ports. With the charter, or ocean, rate the same from North Atlantic ports, and with the inland rates lower to Baltimore and Philadelphia, it is apparent that the through rate from American interior to foreign destination is lower via Baltimore and Philadelphia, and as a rule full cargoes will move through these ports up to the capacity of their elevators to handle the grain. This is illustrated by a statement of the number of full cargoes of grain moving through North Atlantic ports during the last six years.

FULL CARGOES OF GRAIN SHIPPED FROM SPECIFIED PORTS
1908-1913 INCLUSIVE

	1908	1909	1910	1911	1912	1913
Baltimore	1	5	9	18	66	130
Philadelphia	19	12	1	16	34	34
New York	0	5	0	4	26	45
Boston	0	0	0	0	1	6

How New York gets cargoes. Boston gets only a rare overflow cargo. Philadelphia is at present behind

[1] As a rule it costs 1.5d to 3d per quarter (8 bushels) of wheat more to charter a vessel to carry from Boston than from the other ports.

Baltimore because of a lack of elevator capacity at Philadelphia, to be remedied by the recently opened new Girard Point elevator of the Pennsylvania Railroad. New York's renaissance is largely due to the tariff of an Erie Railroad elevator,[1] which for an elevation charge of 0.5¢ per bushel delivers grain to tramps. This 0.5¢ corresponds to 0.75¢ for elevation at Philadelphia and Baltimore, and about equalizes the 0.3¢ differential on ex-Lake grain in cargo lots.

Manufactures in full cargoes. Upon occasions manufactures also move in full cargo lots. This is particularly true of agricultural implements. For instance, the International Harvester Company exports a large number of full cargoes to points like the Black Sea, to which there is no adequate liner connection from this country, and to destinations in South America and even northern Europe, which have not liner space for the International's heavy seasonal shipments. As this company can charter a vessel as cheaply to carry the cargo from Baltimore as from Boston, it is in a position to save for itself, by using Baltimore, the entire differential of 60¢ per ton, $12.00 per car. The Harvester Company exports 15,000 cars of agricultural implements per year. Between September 1 and November 15, 1912, the International Harvester Company chartered ten tramp steamers, all from Baltimore.

That is, in the case of full-cargo shipments the differential acts as a subsidy to the shipper to use the differential port.

Lack of outward cargoes affects inward rates at Boston. Every year scores of tramp steamers come

[1] The New York Central has also applied this tariff to grain taken by steamers direct from elevators.

to Boston with cargoes of clay and other raw products. The differential makes it impossible to load these steamers with grain from Boston; they must proceed to another port to get out-cargo. The prospect of having to make this extra move makes charter rates on cargoes inward to Boston higher than to Philadelphia or Baltimore, and by so much handicaps the New England manufacturer to whom the inward cargo is brought. The impossibility of loading tramps out of Boston is a very serious handicap to the port.

What tramps have meant to Baltimore. What the ability to load tramps may mean is well illustrated by the case of Baltimore. The Pennsylvania Steel Company established its present plant at Sparrows Point, a suburb of Baltimore, because of Baltimore's full-cargo wheat trade. When the plant was first established it got its ore largely from the Mediterranean. The presence of outward wheat cargoes at Baltimore was counted on to cheapen the inward rates on tramp steamers bringing ore. Later Cuba came to preponderate as a source of ore supply. Then boats bringing ore forced a heavy export of coal from Baltimore to Cuba. This coal tonnage outbound is now heavier than the ore tonnage inbound at Baltimore, and more cargo is being sought at Cuba. It is likely that this will be sugar and will result in the establishment of a refinery at Baltimore.

Liners carry the most grain. However, the traffic between Europe and the United States North Atlantic ports is so heavy and regular that it moves largely on line vessels, which sail regularly throughout the year. Each vessel is used by hundreds of shippers and carries, in addition to coarse freight like grain, high-class merchandise and often passengers as well.

Because of the high earnings from these two latter sources and because the liners uniformly have freight in both directions, they almost invariably offer lower ocean rates than tramps can be chartered for. Tramps in this North Atlantic trade are as a rule chartered only when the liner space from all Atlantic ports to a given foreign destination is full; or when cargo shipments of grain and other coarse freight are destined to European ports to which no liners run, such as Cardiff or Calais.

Boston liners have to equalize inland differential. Because of the higher inland rail rate to Boston, the regular steamship line operating out of this port must, if it is to get Western cargo, take an ocean rate lower than that applying from Philadelphia or Baltimore, in order to keep the through rate via Boston the same as via the differential ports. This was illustrated by the rates given on page 58, applying on flour to Hamburg, Liverpool and London from the ports of Boston to Baltimore inclusive. With few exceptions, steamers sailing from this port to European destinations are owned by lines running steamers to the same destinations from differential ports. The difference in the operating cost of a freight steamer making a round trip from Europe to Boston, rather than Baltimore, is not great. Therefore it pays the steamship lines to take western cargo at Baltimore or Philadelphia. The practice of the Hamburg-American Line illustrates this effect of the differential; it has services to Hamburg from Boston, New York, Philadelphia, Baltimore and Newport News. The following table shows the effect on through rates brought about by the company's ocean rates.

TABLE ILLUSTRATING LOWER THROUGH EXPORT RATES FROM U. S. INTERIOR VIA DIFFERENTIAL PORTS TO HAMBURG.
CENTS PER 100 LBS.[1]

Commodity	I Rail rate favor of Baltimore	II Ocean rate Baltimore	III Ocean rate Boston	IV Ocean rate favor of Boston	V Through rate favor of Baltimore (I minus IV)
Flour	2	13	11	2	0
Hominy feed	3	13	11	2	1
Provisions	3	30	29	1	2
Hardwood lumber	3	26	25	1	2
Clover seed	3	30	29	1	2
Compressed cotton	3	25	25	0	3
Kentucky tobacco	3	30	30	0	3
Measurement goods	3	12[2]	12[2]	0	3

Hamburg-American equalizes only partially. Ocean grain rates fluctuate from hour to hour and cannot be compared. Boston averages about 0.5¢ per bushel under Baltimore, more than enough to absorb the 0.3¢ ex-Lake differential; but, until Baltimore liners are filled up, not enough to attract all-rail grain against the Baltimore differential of 1.5¢ per 100 pounds, ⅞¢ per bushel of wheat. But it will be observed that as to the major articles of export freight besides grain, which are noted above, the inland differential is equalized—the through rates via both ports made the same—only in the case of flour. On hominy feed, the Hamburg-American Line takes 2¢ of the differential and leaves 1¢ to the shipper who uses Baltimore. On provisions, hardwood lumber and clover seed, the steamship company takes 1¢ and allows the shipper 2¢. On cotton, tobacco and measurement goods

[1] Ocean rates from April, 1914, Rate Sheets.
[2] 12¢ per cubic foot.

(manufactures) the shipper is allowed the whole 3¢ differential.

London line equalizes more fully. The English lines equalize on a larger proportion of their cargo. For instance, the International Mercantile Marine Company's lines to London have the following ocean rates:

RATES FROM U. S. INTERIOR TO LONDON VIA BOSTON AND BALTIMORE. CENTS PER 100 LBS.[1]

Commodity	I Rail rate favor of Baltimore	II Ocean rate Baltimore	III Ocean rate Boston	IV Ocean rate favor of Boston	V Through rate favor of Baltimore (I minus IV)
Flour	2	14	12	2	0
Oatmeal and oil cake	3	14	12	2	1
Provisions	3	24.49	22.78	1.69	1.31
Hardwood lumber	3	30	27	3	0
Tobacco	3	38	35	3	0

In the case of tramp steamers carrying full cargoes, the differential acts as a subsidy *to the shipper* to avoid this port. In the case of liners, the differential acts as a subsidy *to the steamship company* to take export cargo at another port than Boston.

Indirect outbound services of liners. Some lines do not run services from Boston, but, after bringing to Boston imports for New England, proceed to a differential port to take on western cargo, because they can earn more thereby. Such lines are the Red Star, which proceeds to Philadelphia to load for Antwerp; and the Holland-American which proceeds to Philadelphia to load for Rotterdam. Until June, 1913, the Hamburg-American Line, after discharging cargo at Boston, proceeded to Baltimore to load for Hamburg.

[1] Ocean rates from Rate Sheets of April, 1914.

Once an indirect outward service from Boston is established, it acts to keep away from Boston exports from territory naturally tributary to this port, because of the slow time made by boats sailing from Boston to a differential port before proceeding to Europe. For instance, a linseed oil cake manufacturer in Buffalo exports 100,000 tons of oil cake per year, equally divided between Antwerp and Rotterdam. The rail rate on all Buffalo traffic (except ex-Lake grain) is the same to all ports, oil cake being 8.5¢ per 100 pounds. Therefore the steamship lines can earn no more on this traffic out of Philadelphia or Baltimore than out of Boston. At the present time the ocean rate on oil cake is 19¢ out of both Boston and Philadelphia via Red Star Line. But for convenience in handling, the Red Star Line prefers to have this traffic at Philadelphia, to be loaded with the heavy western exports. The Buffalo man can ship his cake three or four days later to Philadelphia, from which the boat sails last. So Boston gets none of this traffic. Similarly, New England shoe manufacturers ship via Boston their shoes for England, as Boston has direct lines there; they have been shipping shoes for the Continent via New York, because of Boston's indirect lines to North European ports.[1]

[1] The indirect outward sailings of tramps and liners, taking outward cargo elsewhere than at Boston, explains the growing discrepancy of entrances and clearances at Boston.

NET REGISTER TONNAGE OF VESSELS AT BOSTON IN THE FOREIGN TRADE

	1908	1913
Entered	2,864,912	3,039,312
Cleared	2,075,743	1,903,891
Excess of entrances	789,169	1,135,421

CHAPTER VII

PASSENGER TRAFFIC VIA BOSTON AS AN OFFSET TO THE DIFFERENTIALS

Passenger business changes indirect sailings. One of the inducements that may change into direct sailings the indirect services from Boston to Bremen, Rotterdam and Antwerp is indicated by the consideration which led the Hamburg-American Line to change its old indirect freight service from Boston to Hamburg via Baltimore, to a direct service Boston to Hamburg. The new direct first-class passenger service was instituted in 1913 by the "Cleveland" and "Cincinnati," which were to be joined in 1914 by the "Amerika," in 1915 by the "Kaiserin Auguste Victoria." These boats were put on in the expectation of developing a passenger business via Boston. For freight reasons Boston would never have had a direct service to Hamburg.

Passengers as an offset against differentials. It is the passenger business that pays in the North Atlantic trade. Some lines earn seven-eighths of their net from passengers alone. The main reason for this is that the comparatively few liners built to carry passengers are not subject to the competition of tramp steamers, which are called in if freight liners put up their rates high, and whose search for employment, in dull times, forces ocean freight rates very low.

The passenger carriers combine and, year in and year out, maintain passenger rates at remunerative levels. The profitable carrier in the North Atlantic trade is the large combination freight-and-passenger steamer, which makes money from passenger travel in the summer when freights are scarce, and from freight traffic in the winter when passengers are not moving. If Boston can demonstrate its ability to supply passengers for combination freight-and-passenger liners, it will show itself capable of supporting the most profitable type of vessel. Such a vessel, supplied with passenger earnings, can afford to take lower ocean rates and so absorb the inland differential. The furthering of the "Sail from Boston" movement is more than a sentimental matter. It is a practical attempt to meet the difficulties created by the differential situation. Passengers can be made a partial offset against the lower inland freight rates of the southern ports.

Inland fares on passengers. With respect to passenger travel, Boston has a considerable advantage over Philadelphia and Baltimore. Boston is a day's sail nearer to Europe. It is located directly upon the open sea, not 90 to 150 miles up the Delaware River or the Chesapeake Bay. The inland rail rates for steamship travelers via the leading Atlantic ports are shown in the following table. Chicago may be taken as typical of competitive western points.

PASSENGER RAIL RATES BETWEEN CHICAGO AND ATLANTIC PORTS FOR STEAMSHIP TRAVELERS

Between Chicago and	Eastbound		Westbound	
	I Class	II Class	I Class	Immigrant
Montreal	$17.50[1]	$15.00[1]	$17.00[1]	$13.50[1]
Quebec	17.50[1]	15.00[1]	17.00[1]	13.50[1]
Halifax	17.50[1]	15.00[1]	17.00[1]	13.50[1]
St. John	17.50[1]	15.00[1]	17.00[1]	13.50[1]
Portland	17.50[1]	15.00[1]	17.00[1]	13.50[1]
Boston	20.00[1, 2]	17.00[1, 2]	I 22.00[5]	14.00[1]
			II 19.15[5]	
New York	20.00[3]	17.00[3]	20.00[6]	15.00[1]
Philadelphia	18.25[4]	15.50[4]	18.25[7]	13.75[1]
Baltimore	17.50	15.00	17.00	13.45[1]

Eastbound fares. It will be noted that, as to rates *from* Chicago for steamship ticket holders, Boston is equalized with New York rates and that, using the New York, Philadelphia and Boston differential routes, the rates to North Atlantic ports are practically equal. Boston has an excellent differential service, for instance over the West Shore-Boston & Maine.

These inland rail rates, eastbound, published in the

[1] These rates are lower than the corresponding rates for persons not holding steamship tickets.

[2] This is via standard route (New York Central-Boston & Albany). Via differential routes (all others) the rates are: First class, $18.00; second class, $16.00.

[3] This is via standard routes. Via differential routes the rates are: First class, $18.00; second class, $16.00.

[4] This is via standard routes. Via differential routes the rates are: First class, $18.00; second class, $15.50.

[5] This is via standard route (Boston & Albany-New York Central). Via differential routes the rates are:

	I	II
Boston & Maine-West Shore	$20.65	$19.15
Boston & Maine-Erie	19.00	18.15
Boston & Maine-Montreal	18.00	17.15

[6] This is via standard routes. Via differential routes, $18.00.

[7] This is via standard routes. Via differential routes, $17.00.

passenger rate cards of the steamship companies, are via the differential routes for New York, Philadelphia and Boston, and via standard routes for Baltimore and Montreal. These rates read as follows:

EASTBOUND RAIL RATES FOR STEAMSHIP TRAVELERS

Chicago to	I Class	II Class
Montreal	$17.50	$15.00
Boston	18.00	16.00
New York	18.00	16.00
Philadelphia	18.00	15.50
Baltimore	17.50	15.00

Practically equal eastbound fares, all ports. That is, there is practically no eastbound passenger differential. Once the passenger reaches Boston, he finds a wide range of types of transatlantic steamer. To Queenstown, Liverpool and Glasgow he may sail by so-called one-cabin steamers, carrying only second- and third-class passengers. These one-cabin steamers are probably the most popular of innovations in ocean transportation. For the payment of moderate rates the traveler gets a second-class ticket which entitles him to the best accommodations on the boat, for it carries no first class.[1] If he prefers all the luxury of ocean travel, he may have it on the large first-class liners sailing from Boston to Queenstown, Liverpool, Plymouth, Cherbourg and Hamburg. No other port but New York has such passenger service as is now being rendered in Boston by the Cunard Line's "Carmania," "Caronia," "Franconia" and "Laconia"; and by the Hamburg-American Line's "Cleveland," "Cincinnati" and "Amerika."

[1] As is well known, the American Line has made one-class (second class) steamers of the St. Paul, St. Louis, Philadelphia and New York, sailing from New York.

Ocean passenger fares. It is difficult to compare the ocean passenger rates at various ports, for the rates vary almost with each boat and there are no two boats exactly alike. The Atlantic Conference is an association comprising practically all North Atlantic lines carrying passengers. One of the functions of the Conference has been to fix and maintain minimum first- and second-class passenger rates, which are kept in relation to the size, speed and age of the boats so rated. When a new boat comes out, it has been the practice for a committee of the Conference to fix its first- and second-cabin rates.

As a rule these rates, for the same sort of boat, are made the same for all the ports except New York, which is higher. For instance, when the "Franconia" and "Laconia" were built, they were given one set of rates to apply to them when operating in the service Boston-Liverpool, and another set for the service New York-Liverpool. The Boston-Liverpool rates were $5.00 less than the New York rates, both for first and second class. This indicates the generally recognized principle that the outports need a passenger rate differential under New York in order to attract passengers in competition with that port. Boston alone of the United States North Atlantic ports, other than New York, carries first-class passengers, to any extent. The Conference Reports of transatlantic passengers handled via various ports show this:

First-Class Passengers Handled via Other North Atlantic Ports than New York
1912 and 1913

Via Boston		Via Phila.		Via Balto.	
1912	1913	1912	1913	1912	1913
9,300	10,072	114	95	0	3

Boston's attractions for passengers. Therefore, so far as both inland and ocean passenger rates are concerned, Boston is as well situated as the other United States outports, and better situated than New York. Boston's shorter ocean distance to foreign ports gives it a controlling advantage over other outports. Another advantage is the possibility of combining with an ocean voyage from Boston a visit to the historical and literary shrines in this vicinity, in which the average westerner has a keen interest because of heredity and education. The parks, shops and hotels of Boston and the near-by mountain and shore resorts, and the automobile roads of New England, are added attractions to bring leisurely travelers this way.

Need of publicity in West. The "Sail from Boston" movement has hardly penetrated beyond the confines of New England. Few westerners know of the recent development of Boston into a port of first-class liners like the "Carmania" and the "Amerika." They do not know that the ocean rates on vessels of this type from Boston are lower than those from New York and that the inland rates for steamship ticket holders are the same as those of New York from such important centers as Chicago. They often do not know that the best accommodations on such vessels as the "Arabic" and "Cymric" out of Boston are available at second-class rates. They do not realize the shorter ocean voyage from this port. As they plan their sailings, the attractions of Boston and its neighborhood do not occur to their mind. As a rule New York is looked upon as part of the tour.

Advertising of English Port Authorities. To

change this, nothing will be effective except a general campaign of education in the West, and that means advertising. It may seem a radical departure for a port to advertise for passengers. It is not for Port Authorities to advertise for freight. The English commercial and shipping publications are never without pages of advertisements of the Manchester Ship Canal Company, the London Port Authority, the Mersey Docks and Harbor Board (Liverpool), the London and Southwestern Railway (Southampton Docks), and the new port of Immingham. Manchester is the largest advertiser. It is purely a freight port and has no expectation of seeing passengers carried past Liverpool and taken thirty-five miles up a lock canal. Boston's future is very closely tied up with the success of the passenger services from this port.

A Boston publicity fund for the West. The Boston Port Authorities could afford to contribute to a "Sail from Boston" publicity fund to be used in the West. There is perhaps no service that would be so valuable to the steamship lines operating out of Boston as a successful campaign to remove the western ignorance of Boston as a port, and to break New York's monopoly on the traveling mind. This campaign would be simplified by the fact that there are six or seven western centers where the great majority of western travelers either originate or buy their tickets, or whose newspapers are the source of traveling information for these persons. Therefore the campaign could be a local one. It need extend only over the first six months of the year, for practically all bookings are made then. Such advertising would include all Boston lines.

Consolidated Boston advertising. At present Boston is ineffectively advertised by the individual steamship companies. As a rule, the Boston sailings appear under the New York sailings, the latter usually in heavy type; and the various Boston sailings and services are scattered over the steamship pages, hidden among the displays of the different lines. The proposed advertising would concentrate the Boston appeal and present together the alternative lines and sailings from Boston. The precise form which the advertising should take is a matter of detail. It should include the preparation of a booklet giving the prospective passenger detailed information such as newspaper advertising can give him only in broad outline. With an initial fund of $25,000 an experiment in "Sail from Boston" advertising could be made for one year. As beneficiaries of such publicity, the Boston steamship and railroad lines could appropriately be called upon to add to the "Sail from Boston" fund: $15,000 by the steamship lines and $5,000 by the railroads, prorated among them in proportion to the number of passengers carried. The advertising campaign would then be under the joint direction of all three contributors.

Rail rates westbound, for steamship passengers. This publicity would also affect the first- and second-class steamship traffic, *westbound,* of American travelers, who make up the bulk of this traffic. But there should be an adjustment of the passenger rail rates, westbound, first class, putting Boston upon a more favorable basis than at present. The westbound rates corresponding to those already given for eastbound passengers are as follows:

WESTBOUND RAIL RATES FOR STEAMSHIP TRAVELERS[1]

To Chicago from	I Class	II Class	Immigrant
Montreal	$17.00		$13.50
Boston (B. & M.-West Shore)	20.65	$19.15	14.00
Boston (B. & M.-Erie)	19.00	18.15	14.00
New York	18.00		15.00
Philadelphia	17.00		13.75
Baltimore	17.00		13.45

Need of adjustment of Boston rates. The Boston standard route west (Boston & Albany-New York Central) is $2.00 more than the New York standard routes, $22.00 as against $20.00. Boston's cheapest American differential route (Boston & Maine-Erie) is $1.00 more than New York's differential routes. It would be only just to equalize Boston with New York on westbound fares for steamship travelers, as on eastbound. These Boston reductions—to $20.00 standard route and $18.00 differential routes to Chicago—would apply only to rail tickets sold abroad by railroad representatives or steamship agents, or sold on the Boston pier to *bona fide* steamship travelers.

Canadian efforts for United States cabin business. This rate adjustment would better enable Boston to meet the competition of Montreal and Quebec on the north, which have a $17.00 rate to Chicago for cabin passengers. In the detailed passenger rail rate table, given on page 129, a conspicuous feature is the uniformity with which all Canadian ports have adopted, as their rates to and from Chicago, the passenger rates of the cheapest American port; namely, Baltimore.

[1] Boston, New York and Philadelphia differential routes; Montreal and Baltimore standard routes.

It is the American cabin business, in particular, which these Canadian ports are seeking; the heavy immigration to Canada has kept the third-class quarters full. Particularly in the case of the Canadian winter ports, very heavy reductions have been made in the rail fares for steamship travelers, under the regular passenger fares between those points and Chicago. The following table indicates the extent of these reductions:

TABLE SHOWING REDUCTIONS IN REGULAR FIRST-CLASS RAIL PASSENGER FARES TO AND FROM CHICAGO, ACCORDED TO STEAMSHIP TRAVELERS AT BOSTON AND CANADIAN PORTS[1]

	Eastbound From Chicago			Westbound To Chicago		
	Regular Fare	Steamship Travelers	Reduction Accorded	Regular Fare	Steamship Travelers	Reduction Accorded
Boston	$22.00	$20.00	$2.00	$22.00	$22.00	0
Montreal	18.00	17.50	.50	18.00	17.00	1.00
Quebec	22.00	17.50	4.50	22.00	17.00	5.00
Portland	20.50	17.50	3.00	20.00	17.00	3.00
St. John	28.50	17.50	11.00	27.50	17.00	10.50
Halifax	33.00	17.50	15.50	32.50	17.00	15.50

Competition of Montreal and Quebec. The rail journey between the United States interior and the Canadian winter ports, particularly St. John and Halifax, is so tedious that their lower rail fares will hardly avail them to take cabin traffic away from New York and Boston, in spite of the rate sacrifices made. But Montreal and Quebec are, during the warm season, when passengers move, competitors of the

[1] Boston fares via standard routes. Canadian and Portland fares via Montreal.

most active sort. Boston should be put on the same basis in handling westbound United States passengers as she is in handling eastbound.

Boston shut out from Canadian steerage business. It will be remembered that all these Canadian ports but Halifax take the Baltimore import rates on commodities into the United States interior, 3¢ per 100 pounds lower than Boston; while Halifax has the Philadelphia rates, 2¢[1] lower than Boston. There is a concerted and determined effort to build up Canada's ports and, when necessary, to draw upon the American interior to feed them. This policy is expressed in the high subsidies paid by the Dominion Government to liners between Canada, Great Britain and France, and in a railroad passenger and freight rate structure which, while reserving Canadian territory for Canadian ports, claims United States territory also for those ports. Instances of this in Canadian export freight rates will be given later. A single further illustration will suffice with regard to passenger fares. It might be expected that, as the Canadian roads enter United States passenger territory on the basis of the most favored American road, the American lines would be able to make some reciprocal arrangement by which they could share in the transportation of Canadian passengers. The Canadian passenger movement is one of immigrants inbound. The inland fares to Winnipeg from the Canadian and United States Atlantic ports are as follows:

[1] In Halifax it is claimed that this 1¢, by which Halifax rail rates nominally exceed St. John's, is absorbed in the proportion of 0.8¢ by the steamers, 0.2¢ by the Intercolonial Railway, making the through rates the same via both ports.

RAIL FARES FOR IMMIGRANT PASSENGERS TO WINNIPEG

From		From	
Montreal	$18.00	Boston	$24.00
Quebec	18.00	New York	25.00
Halifax	18.00	Philadelphia	25.00
St. John	18.00	Baltimore	25.00
Portland	18.00		

Canadian immigrants only for Canadian ports. This $6.00, by which the rate from Boston is higher than from Canadian ports, effectively precludes the movement of Canadian immigrants through this port. To make assurance doubly sure, the Dominion Government pays to booking agents abroad a bonus of £1 per head for British agricultural and domestic laborers over 18 years, 10/- for such immigrants under 18 years. The bonus applies only to immigrants coming via Canadian ports, Portland being considered as a Canadian port during the winter season. It is this $6.00-$7.00 differential against American ports which causes the Cunard, White Star and Allan Lines to Boston in the spring, before Montreal opens, to stop westbound at Portland or Halifax to land Canadian immigrants. It is this which makes many lines having no Canadian services, like the Navigazione Generale (Italy) to Boston, the Russian American to New York, the Uranium Line (Rotterdam) to New York, call at Halifax to discharge and take on Canadian steeragers. From many points of view, some of which will appear later, Boston's severe competition in the future will come from the North rather than the South.

United States immigrants are pooled. With regard to United States third-class (immigrant and emigrant) passengers, in- and outbound, the inland rail fares are

not of determining importance. That is because the ocean rates on third-class passengers are continually being varied by the different steamship lines in order to effect the distribution of westbound and eastbound steeragers as arranged in the British, Continental and Mediterranean Steerage Pools.

It will be recalled that the inland rates to Chicago vary little as between the different ports. Boston is $14.00, $1.00 under New York, 50¢ over the Canadian ports, 25¢ over Philadelphia, 55¢ over Baltimore. Immigrants are susceptible to slight differences in through rates and, with the inland rates fixed, the variable ocean proportion determines the through rate. These ocean rates are moved up or down, on various steamers, in order to regulate the quotas carried by the different Pool lines. The Canadian lines are going to be more and more fully employed in carrying Canadian steeragers.

Boston's hold on immigrant traffic. Boston offers to steamship lines serving the United States exceptional inducements to bring their through immigrant passengers via Boston. These inducements are: a shorter ocean voyage to Boston; an inland rate to the West $1.00 under New York, free piers in Boston with spacious quarters for handling immigrants; finally, examination of immigrants on the piers where they are landed, without the necessity of transporting these passengers, at steamship expense, to a union immigrant station for examination. At New York, after the steamers have docked and cabin passengers are landed, steeragers must be barged to Ellis Island. At Boston western immigrants may be sent inland from the steamship pier. The smaller number of immigrants landing at this port permits the immi-

gration officials to give more time and courtesy to the examination of the new arrivals than is possible in the crowded station at Ellis Island. Because of these conveniences in Boston, the port enjoys a growing popularity among immigrants. The best publicity among prospective immigrants in Europe consists of letters from their pleased countrymen who have entered at Boston.

The growth of New England industries has furnished a valuable local territory for absorbing immigrant laborers. Boston's Liverpool lines have been built largely on British and particularly Irish immigration to New England. The replacement of the British by a Continental stream of steeragers is reflected by the development of North European and Mediterranean lines.

New York in Boston territory on British steeragers. A peculiar equalization of inland rates on British steerage passengers for New England has let New York into this territory more than would have been natural. An immigrant for Boston can reach Boston as cheaply via New York as via Boston itself. If he comes via New York he is given a free ticket to Boston on the Fall River Line. Similarly, if he is destined to a point nearer Boston than New York, and enters at New York, he pays the inland fare from Boston and is given a ticket from New York. For instance, an immigrant at New York for Providence pays 90¢ (the Boston-Providence fare) and is given a ticket to Providence on the New York-Providence boat. So far as inland fares are concerned, New York is moved up to Boston. In point of convenience in inland travel, Boston is still preferable; the immigrant can reach

Providence on the day he lands in Boston, while he must wait for the night boat from New York.

The equalization of Boston and New York rates on British immigrants to New England territory is not a matter of great importance. It does not generally apply to Continental and Mediterranean steeragers. In the case of these, Boston retains in inland fares the advantage of its location, though the New Haven publishes from New York to New England points, via its Sound Lines, lower immigrant fares than the local rates from New York, the fares including transfer from Ellis Island to the Sound Line boats.

Russian outward steeragers at Boston. The one serious hindrance to the movement of local New England third-class passengers through Boston is in reference to Russians outbound. In order to return to his own country, a Russian must have a passport. Many of them come from Europe without passports, being smuggled across the border. Those who bring regular passports usually let them lapse because of the high annual tax payable to the Russian Government in order to keep the original passports alive. The usual way to return is with a consular certificate, or prochodnoje, issued by a Russian consular official in the United States. At the present time the Imperial Russian consul at Boston is not empowered to issue these prochodnojes; he can obtain them only from the Consulate General in New York. The delays and expense of this procedure are such that many Russians from Boston itself pay their fares to New York and sail from there, in spite of the fact that the Hamburg-American Line and all British lines from Boston carry Russian passengers. An inquiry sent to the principal agents selling outward steerage

tickets in 21 towns in the neighborhood of Boston showed that, during the first eight months of 1913, these agents had sold 3,205 Russian outwards via New York and only 1,253 via Boston. By the Metropolitan District agents alone 1,799 tickets were sold via New York and only 711 via Boston. It is to be hoped that the necessary extension of powers will be conferred on the Boston consular office.

CHAPTER VIII

STRONGER BOSTON SOLICITATION IN THE WEST

Stronger Boston solicitation in West. The development of the passenger business of Boston transatlantic lines has been described as an offset to the effect of differential freight rates. Another offset would be the strengthening of exclusive Boston soliciting forces in the West. Western export traffic is sought by three main sorts of solicitor: the western steamship freight agent, the western "commercial agent" of a railroad fast freight line, and the western representatives of New York forwarders or ocean freight brokers.

In Boston, brokers should get commissions, as in New York and Philadelphia. The last type is soliciting only for New York. One reason is that the brokers are allowed a commission of 1.25% on the freight rates of all traffic they book at New York. If a Boston forwarder gets exports sent to him in Boston he gets no commission on such traffic when he books it with the steamship line. Even the American Express Company gets no commission from the steamship companies on traffic booked at the port of Boston. The largest brokers and forwarding companies have offices in both New York and Boston, the home office being in New York. It does not increase their enthusiasm for Boston exports when they are allowed a freight commission at New York and not here.

Here there is opportunity for the steamship lines to correct an inequality by providing, under proper safeguards, to give the New York 1.25% commission to Boston brokers who bring them traffic. In Philadelphia also all brokers are allowed 1.25% commission on all freight they book.

What a seaboard broker does. The seaport broker or forwarder is used particularly by the inland exporter of L.C.L. The broker books the freight by the cheapest steamship line, exchanges the inland for the ocean bill of lading, forwards the latter to the shipper, looks after prompt clearance, notifies the shipper of clearance and makes a return regarding weight and value to the Customs for statistical purposes. In some cases complicated proceedings are necessary to get the consular documents required for shipments, especially for shipments to Latin-American countries. The seaboard forwarder can consolidate small lots of export, and, by offering them as a larger lot, obtain a saving in ocean freight which is shared with the shipper. An L.C.L. exporter cannot afford to maintain at the seaboard an export representative of his own, to look after his export shipments. The small inland shipper can save money if he can consolidate into a full car all his export shipments, send them to New York at the carload rate—consigned to the broker, and pay the broker for distributing them to the various steamship lines.

Boston's extensive services. New York is of course the best port to which to send such a consolidated car for export, as, no matter where an individual shipment may be destined, foreign or coastwise, New York is sure to have a line to carry it. But Boston now reaches, with direct services, all leading British ports,

Hamburg, Italy, Havana, Central America and the Maritime Provinces. Mediterranean, Australian and African points are reached via transhipment at Liverpool or London or Hamburg; Australia, for instance, usually as rapidly as via the infrequent direct services from New York.

Evidence of weak western solicitation for Boston. A letter received from Springfield, Ohio, in response to a circular letter sent to traffic managers in the West, indicates the lack of solicitation, in that territory, of Boston forwarding people. Springfield is an L.C.L. export town. The letter follows:

The Springfield Traffic Bureau,
Springfield, O., Feb. 5, 1913.

Dear Sir:—

Acknowledging receipt of your favor of the 30th ult., in which we are asked as to what conditions are operating against the flow of export business from here through the port of Boston, we itemize below some of the points which we believe have a bearing on that subject:

1st. The time made by freight from here to Boston does not compare favorably with the time to New York. It is our opinion that the railroads put forth greater efforts to rush New York export business than that destined to Boston.

2d. The infrequency of sailings from Boston. (We are pleased to note that you are changing this.)

3d. Business is sent through New York on account of a long-established habit. We do not believe that this is done on account of any prejudice against any other gateway, but rather on account of the consignors not taking the trouble to investigate the merits of Boston or other gateways.

4th. The lack of solicitation or boosting the port of Boston such as you are now doing.

5th. *The activity of the numerous freight-forwarding*

agents located in New York. Their solicitation in this territory is vigorous. We never heard of one from Boston.

6th. A very small percentage of L.C.L. export business moves from here.[1] Our manufacturers combine their own export shipments or in conjunction with other manufacturers and move the business at carload rates, which makes a very material saving not only in the freight but in the lighterage charges. Under these conditions there may be one shipment in a car which would find prompt accommodation[2] and several others which would be delayed, whereas New York could promptly move each shipment.[3]

7th. Our opinion so far as applying to this territory is, that the shippers themselves are the ones who must be educated to the fact that New York is not the only American port. We would estimate that 90 per cent of the prices made on export shipments are f. o. b. New York. In fact a great many catalogues show prices covering that delivery.

Yours truly,

THE SPRINGFIELD TRAFFIC BUREAU.

Equalize Boston with New York and Philadelphia. There is need, and, with the extension of Boston's oversea services, opportunity for an increased activity of Boston brokers and their connections in the West. Equal treatment with New York and Philadelphia in the matter of commissions paid, would help supply them with the incentive for extending their western solicitation for exports via this port; and it would increase interest for Boston on the part of New York firms with branches here.

The brokers can offer via Boston the same export rates as New York and one advantage over New York;

[1] As L.C.L. The next sentence explains.

[2] At Boston.

[3] Because of the extensive oversea services at New York.

namely, in the free distribution, from the car, of shipments, to the different steamship lines. New York will give only three free lighterage deliveries to the contents of such a consolidated car; further deliveries must be by team and paid for. Boston tariffs provide for free teaming of any number of "split shipments" in a consolidated car.

An especial reason for increasing the interest of forwarders in shipments via this port is that they so enjoy the confidence of many shippers as to control the movement of their exports. The recent preponderance of manufactured goods in the export trade has largely increased the demand for the seaboard service which these brokers and forwarders render.

Western agents of steamship lines. The second class of western solicitors of export freight consists of the western representatives of the steamship lines. For instance, the International Mercantile Marine Company has a General Western Freight Agent at Chicago, a Northwestern Agent at Minneapolis and a Southwestern Agent at St. Louis. The Hamburg-American Line, Furness Withy & Company, and other large freight-carrying lines have similar western representation. Besides soliciting freight for export at Boston these agents are also soliciting freight for the parallel services which they run out of ports competitive to Boston, and as they earn more on carryings out of Baltimore and Philadelphia, they cannot be expected to throw any especial influence to the Boston service. As a matter of fact, these representatives solicit impartially freight for all direct services run by their companies. The steamship companies feel that they have done a great deal when they equalize the through rates via Boston with the

rates via the southern ports; see, for instance, the equalization for the Boston-London service, in the table on page 125. When, in spite of this equalization, it is more difficult to fill the Boston boats than the Baltimore and Philadelphia boats, the steamship lines feel that they are not having adequate help from the traffic forces of the Boston railroads.

Commercial agents of fast freight lines. Railroad solicitation of export freight is performed by the western representatives of "fast freight lines." For a long time there were separate sets of lines east and west, respectively, of Buffalo and Pittsburgh. To provide for through cars, through routes and through rates between points on eastern and points on western lines, "fast freight lines" were jointly established, sometimes jointly owning special through cars which, without breaking bulk, ran through over the rails of eastern and western members. But essentially they were traffic organizations soliciting through freight for this particular route. Eventually nearly every eastern line came to have a fast freight line in connection with every western road, though now each road has one or two connections with which it works preferably. When eastern and western lines are one road, as in the case of the Pennsylvania east and west of Pittsburgh or the Erie east and west of Salamanca, then the fast freight line of the road becomes its traffic organization dealing with through business. Such are the Star Union Line of the Pennsylvania, the Erie Despatch of the Erie, the Red Line and the Blue Line of the New York Central system. The "fast freight" solicitors of the West, being interested in through business, also solicit export freight. There is a repre-

sentative of every such line, called a "commercial agent," in every western center of importance.

New England members of fast freight lines. These through routes attach to their fast freight lines short roads in the Middle West and also lines east of the Hudson River. The Boston & Albany is a member only of New York Central fast freight lines. But the Boston & Maine and New Haven have long been members of all the leading fast freight lines, including those of the New York Central.

The New England road participates in the support of each of these traffic organizations in proportion to the volume of freight which they turn over to the New England carriers.

Minor interest of lines in Boston. It might be supposed that, as the Boston & Maine participates in the support of these organizations, their fast freight employees are in duty bound to solicit as zealously for Boston as for New York or any other port. But the contributions of the Boston road come after the traffic has been sent here. *It pays for traffic sent to Boston, not for sending it here.* The fast freight organization is appointed, instructed and controlled by the eastern trunk line, which in every case has another home port than Boston.

Effect when through rates via Boston lower. The shipper has a right to route his freight as he chooses. When the through rate is lower via Boston, he is fairly certain to book his export for a Boston boat. Then nearly every commercial agent is soliciting that freight to move to Boston via his line. If it is once booked to sail from Boston, there is no chance to influence it via any other port, and it is better to take half a loaf than none at all.

When through rates are equal. If every shipper picked his boat before consulting the fast freight men, they would have little influence on routing. Many shippers—for instance in Duluth—get their ocean rate quotations from the commercial agents, letting them stand the expense of wiring to Chicago for rates. When the quotations come back, the through rate to Europe on flour, for example, is likely to turn out to be the same via all ports. Then the influence of the commercial agents is used in favor of their home ports, by such methods as expressed or implied preference or promises of prompt car supply and service. The shipper knows that the Erie Despatch man prefers New York. He knows that the Erie Railroad alone will be responsible for prompt export service to New York; if freight moves to Boston, the Erie shares the responsibility of service with the Delaware & Hudson and the Boston & Maine.

A possible exception to this rule is the New York Central, which, owning the Boston & Albany, can as profitably carry exports to Boston as to New York.

In the 1904-1905 Differential Case, Mr. Eaton, Western Agent of the Erie, referring particularly to flour, testified as follows (Hearings, p. 705):

> With equal through rates, I should say that there are more instances where the bookings and the routing of freight beyond the Atlantic seaboard are left to the railroad, than cases where the shippers express their preference.

Boston steamships miss railroad help. As a result of the lack of Boston solicitation in the West, the steamship people say that it is easier to get freight for other ports than Boston, on equalized through rates. No one in the West is telling shippers of the

advantages of using this port; for instance, that it has New York's export rail rates and usually ocean rates low enough to offset Baltimore and Philadelphia's differential, that fast passenger steamers increase the port's advantage of being a day's sail nearer Europe and that Boston has for provision shipments an "ice water route" that can in every way measure up to that of Montreal. Western shippers talk of New England roads as a great terminal yard, complacently switching domestic traffic which is bound to come to New England any way, and indifferent to the export business, highly competitive and moved at lower than domestic rates.

For education, a traffic department of Port Directors. To systematically carry on this work of education among shippers, the Boston Port Directors should have a small traffic department of their own. The work of such a traffic department is so well illustrated by the development of the port of Manchester that Manchester's organization deserves examination in some detail.

The example of Manchester. One of the most successful examples of port development is that of Manchester, England. It has proceeded essentially along traffic lines. In 1894, after heavy expenditure made by a private company and by the city after the company's resources gave out, a ship canal was opened, 35 miles long, connecting Manchester with the sea. It has cost $80,000,000. To get to Manchester, vessels had to pass by Liverpool, the second port of England. In Liverpool were concentrated all the steamship lines serving the north of England; there were located the merchants who handled export and import goods; railroad lines radiated from Liverpool

and got their longest haul, and largest earnings, when traffic moved through that port. When the ship canal was finished, and docks, sheds, grain elevators and belt line were constructed, Manchester was by no means a port.

Organization of Manchester's Traffic Department. It was the Traffic Department of the Manchester Ship Canal Company which engaged the steamship lines that now make Manchester the third port in the United Kingdom, and induced them to give Manchester the same ocean rates as Liverpool. This department brought about a readjustment of rail rates, between interior points and Manchester and Liverpool respectively—a readjustment that gave Manchester the advantage of its greater nearness to the manufacturing centers of the North. The railroads now allow to the belt line rate divisions which make it self-supporting. The charges levied on ships and goods for use of the canal and docks are carefully calculated for each article of traffic moving. In every case inducement is left for the traffic to move via Manchester, rather than a rival gateway.

Its field force. The Traffic Department has thirteen or fourteen solicitors traveling out of Manchester in the manufacturing centers. These solicitors carry the rate cards of Manchester steamer lines and demonstrate to the shipper that he gets the same ocean rate out of Manchester and a lower inland rate than to Liverpool; that his carload shipments will be delivered alongside the ship at Manchester without the cartage usually necessary at Liverpool, etc. These Manchester solicitors do not book freight; it is booked by the local agent of the originating carrier. But, having persuaded the shipper, they call in the local

representative of the Manchester steamship line and he makes a contract with the shipper covering one shipment or all shipments for a year. That is, the Manchester Ship Canal solicitors are working for all steamship lines in Manchester. In order to be considered impartial, they accept no commissions from either railroad or steamship lines, but are supported by the Manchester Ship Canal Company, which means the port of Manchester. The stake of the latter is partly the charges paid by ships and goods using its belt line, docks and canal; but particularly the growth of the port's steamship connections and the resulting prosperity of the city of Manchester, which is the principal holder of the Canal Company's securities.

Representatives in other English ports. This Traffic Department also has traffic representatives in London, Liverpool and Hull. The business of these men is to find out what traffic is moving through those rival ports destined to or coming from the territory geographically tributary to Manchester. They find out who controls that traffic and he is approached and urged to give it to Manchester. A London importing house may give the information that goods it imports for the account of a Birmingham buyer are sold f. o. b. Birmingham; hence the routing is directed by the foreign seller. The foreign traffic representative of the Canal Company, located nearest to that seller, is then instructed to call on him.

Agents in United States and elsewhere abroad. Foreign representatives are maintained in the leading countries trading with the north of England; for instance, in the United States, Canada, Australia and New Zealand. In Toronto is a representative who has an assistant continually traveling for him and who

travels some himself. The New York office has a manager and two traveling agents, besides an office force. One of these traveling agents confines himself to New York alone; one travels mostly in the West; in addition, the New York manager regularly visits the largest shippers. Foreign agents are not maintained in near-by countries such as Spain and Italy. These are covered by the Manchester home office which, for instance, every year sends a man to Italy before olive oil is shipped, and to Spain before grapes move, in order to inform and solicit the leading shippers there.

A considerable amount of literature is regularly issued by the Canal Company. The most important piece is a regular monthly pamphlet called "Manchester Sailing List and Shipping Guide." The sheets giving Manchester sailings are new every month; the rest of the pamphlet does not change. This booklet contains information regarding the history of the canal; the charges for use of the canal and the docks; illustrations of savings on inland rates and terminal charges effected by using Manchester rather than Liverpool; a list of all officials and representatives of the Canal Company with their addresses; advertisements of the Manchester steamship lines and the Manchester freight brokers and forwarders.

Boston is like Manchester. It will be seen that Manchester has a traffic organization of world-wide scope, educating shippers and soliciting freight. Its co-operation is the most valuable inducement that can be offered to a prospective steamship line. Boston's situation, overshadowed by New York, is not unlike that of Manchester, subject to the overwhelming competition of Liverpool. The same measures will

be effective here as there. The present extensive Manchester organization is the result of evolution; Boston does not at first need such wide connections, but it should start its organization now.

Port Directors' traffic department. The traffic department of the Port Directors should be under a traffic manager, who would be part of the permanent force of the Directors and co-ordinate with the chief engineer. This manager should have an assistant, who, among other things, would keep a rate file of the land and water rates affecting Boston water lines; and a traveling agent who, under direction of the traffic manager, would regularly cover the exporters of New England, the Middle West and Eastern Canada. Once a year the traffic manager himself should visit each of the largest of these exporters. The shippers should be encouraged to feel that this department is the one to turn to for rectification of inland or ocean rate adjustments that keep traffic from moving through Boston. A great many obstacles to this movement would come to light, now kept hidden by those whose interest it is to do so. Ways to remove these obstacles would be devised. The Department would be a reservoir of information for New England exporters and importers.

What it would accomplish. The information collected from many sources by the traffic department would put it in the strongest position to approach steamship lines and negotiate for desired extensions of Boston's services. The traffic department should prepare and regularly distribute a pamphlet of information for shippers, modeled on the "Sailing List and Shipping Guide" of the Manchester Ship Canal Company. Finally, the traffic department

should do the work of the industrial commissioner of a railroad; that is, it should have charge of the business of attracting tenants to the State's lands at South Boston and East Boston. With the aid of this department, the Port Directors would be able to formulate and pursue the broadest traffic policy, looking to the development of the port. Most "port development" in the United States is based on instinct and enthusiasm rather than the business information that should be the basis of public as well as private expenditure and action. The traffic department should save the Port Directors and the State from errors being committed elsewhere. The institution of a traffic department would be a strong evidence to steamship companies of the earnestness with which port development in Boston is proceeding, and of Boston's recognition of the lines along which it must develop if at all. The traffic manager should be a practical transportation man of high caliber.

Its organization. The traveling agent covering inland exporters would primarily serve the purpose of educating them to the use of Boston and keeping them in touch with the port's progress, as in the extension of its steamship lines or the rise of new seaboard trade agencies capable of handling the exporters' shipments. As in the case of the Manchester men, when the traveling agent found a shipper ready to make a shipment or a contract, he would bring him in contact with the western representative of the Boston steamship lines. Steamship companies have expressed their willingness to have their western representatives work in harmony with such an agent of the Port Directors.

Its later extension. Later it will no doubt be found advisable to extend this organization. It will be found desirable to have a representative located in Chicago, with at least one man traveling for him. In Chicago are concentrated the general western offices of steamship and railroad lines; in Chicago originates a large proportion of export traffic moving. Memphis, Minneapolis, St. Louis and other export centers are quickly reached from Chicago. It will also be found desirable to have a man located in Buffalo, which is destined to play a much more important part than at present in export traffic, and which, because of its equal rates to all Atlantic ports, is of especial interest to Boston. It will be found desirable to have a foreign representative in England and one on the Continent, in order to reach foreigners who control the routing of export or import shipments that might move via this gateway, and in order to keep in closer touch with the home offices of foreign steamship lines. But these developments will come naturally when the effectiveness of a traffic organization is demonstrated. The important thing is to get it started in the modest way outlined above.

Need of Boston railroad agents in West. There should also be in the West representatives of Boston railroads, engaged in soliciting export freight for Boston. It has been seen that Boston is in a weak position to secure western exports in that it has no railroad line of its own beyond the Hudson River. All its traffic must come from rail lines whose primary interest is to carry the traffic to some other port. Under these circumstances it is not enough for Boston roads to have equal rail rates with New York. They

need active solicitation in the West; the fast freight lines of which they are members cannot be relied on to give them that solicitation.

All other ports represented in West. Baltimore has two rail lines to Chicago: the Baltimore & Ohio and the Pennsylvania.[1] Chicago is full of Baltimore & Ohio solicitors. The Star Union Line (Pennsylvania) maintains there an export agent with an extensive organization. He has educated the Star Union Line men throughout the West in the solicitation and handling of export business. He issues to shippers ocean rate sheets giving rates at various ports, and is probably the most effective of all the western railroad agents, with regard to influence upon the routing of export traffic.

Philadelphia has three roads: the Baltimore & Ohio, the Pennsylvania, and the Philadelphia & Reading. The Chicago representation of the Baltimore & Ohio and the Pennsylvania has been described. The Philadelphia & Reading does not get west of Williamsport, Pa. It is the Boston & Maine of Philadelphia, a stub line dependent for traffic on what is handed to it by the trunk lines, each with a home port of its own. The Philadelphia & Reading maintains in Chicago an office with a manager and several Reading men traveling out of it. Their especial care is the export business.

The New York railroads are represented by the commercial agents of fast freight lines belonging to these roads, and also by Lackawanna and Lehigh Valley offices, distinct from the representation of their

[1] The Western Maryland is not yet of any considerable importance in the export trade.

fast freight lines. Montreal is represented by the strong solicitation of the line men of the Grand Trunk and the Canadian Pacific. In the winter their efforts are turned to Portland and St. John, respectively. Only Boston has no representation.

When the New Haven was in export business. In the early 1900's, the New Haven decided to enter the export business. It engaged for its South Boston docks a line to Antwerp and a line to Manchester.[1] The New Haven established a foreign freight agent in Boston and opened offices for New Haven representatives in both Buffalo and Chicago. In addition, it devoted one of its New York soliciting force to covering New Yorkers controlling the routing of export and import freight, in order to have them move their shipments via Boston. With the entrance into power of the late New Haven régime, it was decided that the export business did not pay. The New Haven representatives, engaged in facilitating it, were withdrawn, and the steamship lines were forced to the Boston & Albany and Boston & Maine piers. The New Haven then stayed out of the foreign trade until it was brought into it again by the institution of Commonwealth Pier 5, at South Boston.

The situation is in no way changed today. There is still the same need for western railroad solicitation for the Boston gateway as there was when the New Haven took the matter up. The steamship lines of the port deserve this aid from the inland carriers of their freight. They deserve it particularly because of the western aid given by railroads to foreign lines

1 While the New Haven had these lines at South Boston it applied the Baltimore import rates to the West.

at other ports; and because of the geographical and commercial weakness of Boston, with respect to getting western export traffic. The Boston & Maine and Boston & Albany and the New Haven should each have an export agent at Chicago, covering the Middle West.

C

A SOLUTION OF THE TRAFFIC PROBLEM

CHAPTER IX

CANADIAN GRAIN PRODUCTS

Boston must be a freight port. Development of passenger business through Boston has been described as one offset to the effect of the differentials. A second offset would be the strengthening of Boston's soliciting forces in the competitive West. This would enable Boston to get a fairer share of the exports of this territory. But the worst effect of the differentials remains: the subsidy they offer to steamship lines to handle the exports of the West at a differential port, by offering these lines additional earnings via the southern ports, earnings greater than the added costs of operation to those ports. The offsets described may mitigate the severity of Boston's problem, but they do not solve it. Passenger business is seasonal. If Boston is to attain real greatness, it must be a freight port. To develop Boston as a freight port, the steamers must be supplied with export traffic on which they can earn as much as they could by taking that traffic elsewhere. Then, the lower steamship operating costs applicable to Boston will make them turn their influence this way. The only way in which Boston can become a second great seaport on the North Atlantic coast is to make it worth while for the steamship lines to make it so.

Non-differential traffic necessary. Boston's efforts in the last Differential Case, seeking equal export and import rates with Baltimore, were an attempt to have

the ban taken off the traffic of United States differential territory. It failed. Boston must now look elsewhere for non-differential traffic; that is, traffic brought to this port on as low inland rates as to its competitors—on which, therefore, the steamship lines need not shrink their ocean rates in order to compensate the higher Boston rail rates. This may be safely stated as the chief problem of the port of Boston.

Where it may come from. This traffic may be of three main sources: from New England, Buffalo and Canada. Boston cannot complain of its present quota of New England export freight. Most of its coarse exports, such as apples and cotton waste, move for export at Boston. There can be no just complaint that export rail rates from New England points are unfair to Boston and tend to take oversea traffic to New York. When New England manufactured exports go to New York there is generally some good reason for it. In some cases they are destined to points like South America, to which Boston has no sailings. In some cases they are sent to New York in the interest of expedition, when the Boston outward service is a slow, indirect one, such as the Antwerp and Rotterdam services via Philadelphia. One case is that of an exporter of motorcycles who has a contract to deliver fifty motorcycles per week in London. Boston has no weekly London service, as it used to have; therefore it is not in shape to contract for this traffic. In some instances the New England manufacturer does not export direct but sells to a New York commission house, which brings all shipments to New York to be consolidated and exported. But in general New England export shippers are loyal to Boston, which will get a still larger proportion of their traffic as soon as

its oversea connections are made more frequent and more extensive. If every pound of New England exports could be forced through this gateway, it would not save the situation. New England does not produce the bulk to fill ships.

Buffalo. Buffalo is an export center of great promise. The mills which make grain products for eastern distribution and for export have expanded largely in Buffalo in recent years. The reason is that grain thus exported pays the low rate on grain down the Lakes to Buffalo and the higher rate on grain products only from there east. Grain milled in the West pays the higher rate on grain products all the way east. In addition to an advantage in rates, Buffalo has the advantage of nearness (which means rapid service) to the Atlantic seaboard. The cheap transportation of grain in the Lake freighters is the making of Buffalo. The exports of oil cake (from flaxseed) by a single firm have already been referred to. One of the striking developments of the flour industry in recent years has been the growth of mills in Buffalo. In the daily capacity of its mills it is now easily the second milling center of the country.

DAILY CAPACITY OF FLOUR MILLS AT LEADING MILLING CENTERS[1]

	No. of Mills	Daily Capacity
Minneapolis	23	85,100 barrels
Buffalo	11	27,300 barrels
Montreal	3	12,500 barrels
New York	1	12,000 barrels
Kansas City	8	11,600 barrels
Tacoma	3	9,000 barrels
Toledo	5	8,100 barrels
Seattle	5	6,800 barrels
St. Louis	4	6,700 barrels

[1] Millers' Almanack, 1914-1915, p. 184.

Buffalo as a milling center. These Buffalo mills are run largely on export product; for instance, most of Washburn Crosby's exports come from their mill there, which can turn out 15,000 barrels per day. If Canadian wheat comes into this country free, as it will automatically when the Canadian duty on American wheat and flour is taken off, the present restrictions on milling Canadian wheat in bond will be removed, and Buffalo will become the largest miller of Canadian wheat for export. Canadian wheat milled in Buffalo would have its choice of ocean services of all United States Atlantic ports and, in addition, a marked advantage in rates and service to the whole consuming market of the Atlantic seaboard.

Buffalo good Boston territory. It will be recalled that export rates from Buffalo to Boston, New York, Philadelphia and Baltimore are the same. They are, in cents per 100 pounds, 8.5¢ on oil cake, 9.5¢ on flour, 10.5¢ on iron and steel products. Therefore no higher ocean rate can be earned on this traffic out of Baltimore or Philadelphia than out of Boston. In the case of flour, for instance, the Boston lines generally earn the Baltimore ocean rate on Buffalo shipments. Boston can look with the greatest satisfaction upon the development of Buffalo. Everything produced there, rather than in United States differential territory, is moved out of the ban and into the zone of influence of New York and Boston. Buffalo is an export field to which the attention of the soliciting forces of Boston railroads, and of the traffic department of the Port Directors, can be turned with profit and success.[1]

[1] Buffalo traffic is also far more profitable to the Boston roads; 40% of a 9¢ flour rate from Buffalo is far better than 20% of a 14¢ rate from Chicago.

Canada. But the principal field to which Boston should look for its export tonnage is Canada. Boston has always been considered, even by the Canadians, as the "natural" overflow port for the growing volume of Canadian grain and grain products which, as the Canadian roads know, cannot be forced through the narrow gateway represented by Canada's summer port of Montreal, and its far-away winter ports of Portland, St. John and Halifax. It has been expected that Boston would come into its own as Canadian wheat replaced United States wheat for export, and that the monopoly of the differential ports, based on the carriage of this United States grain, would be broken. Yet, as Canadian exports have increased, they have not seemed to flow through Boston, which seems to get no particular advantage from its relation to Canada. A study of the situation shows that Canadian export wheat is taking routes that do not lead to Boston, and having applied to it the differential rates constructed to protect the southern ports on United States grain. Quietly, and without protest, a rate discrimination is crystallizing which, unless it is promptly met, will result in Baltimore and Philadelphia appropriating Canada as they have the American Middle West. Boston's last chance as a freight port disappears if it allows its rivals to appropriate this, its legitimate export field, which, in its possibilities for the future, is the most promising of all areas on the continent. The danger is so great, and the stake so large, that the subject deserves the most careful attention.

Decline of United States grain exports. The staple upon which the British and European services of all American ports are built is the carriage of grain,

especially wheat. A small quota of wheat for a liner to carry from a United States outport is 100,000 bushels (2,600 tons). Two hundred thousand bushels (5,200 tons) is not an unusual item; for instance, for the Boston Leyland Liners to Liverpool. Great Britain, Germany, Scandinavia, France, Italy and Spain produce less wheat than they consume, particularly the three first named. The highly developed North Atlantic trade was built upon the carriage of wheat to Europe and the bringing back of immigrants to produce more wheat. But the United States is ceasing to have a large exportable surplus of wheat. The immigrants have been more and more turning to the high wages offered in our industries, especially as free government land began to give out. Mouths to be fed have increased more rapidly than workers to feed them; in the last ten years our wheat production has not advanced; the surplus available for export has dropped. This is shown in the following table:

TABLE ILLUSTRATING DECLINE OF U. S. WHEAT AVAILABLE FOR EXPORT, FISCAL YEARS 1898-1913, INCLUSIVE[1]

Fiscal Years Ending June 30	Population	Wheat Production bu.	Wheat retained for consumption bu.	Wheat Exported[2] bu.	Per Cent Exported
1913	97,030,000	730,267,000	587,387,000	142,880,000	19.57
1912	95,410,000	621,338,000	541,618,000	79,689,000	12.83
1908	88,938,000	634,087,000	471,043,000	163,043,000	25.71
1903	80,848,000	670,063,000	467,157,000	202,905,000	30.82
1898	72,947,000	530,149,000	312,813,000	217,306,000	40.91

Only New York unaffected. The year 1913 shows a recovery in American wheat exports, due to the

[1] Figures from Statistical Abstract of U. S. Production figures are for calendar year preceding fiscal year.

[2] As wheat and flour together.

exceptional wheat crop of 1912. But the United States cannot be counted upon to supply Europe with wheat much longer; the rapid tendency is to consume our own product. The same is true to a lesser degree of flour; but the decline in United States flour exports has been aided by the development of modern mills in foreign ports, supplied with American machinery. These mills are beginning to market flour more cheaply than mills in the American interior, because bulk wheat can be carried abroad more cheaply than sacks of flour. In the last few years the complaints of American flour millers have multiplied regarding the increasing spread between ocean rates on flour and wheat, respectively. The drop in wheat and flour exports has been a most serious matter for North Atlantic ports other than New York. Baltimore and Philadelphia have seen the usefulness of their differential decline, for the two exports which it most affected, dropped off. New York has steadily progressed, for, with its network of services and its perfected trade agencies, it was in position to handle the exports of United States manufactures which have replaced our shipments of foodstuffs. The differential had no effect on these manufactures; 60¢ per ton on automobiles is not an item to be considered. Boston has suffered the agricultural losses of Philadelphia and Baltimore and has not had the compensation which New York has had.

Canadian breadstuffs export grows. United States exports of breadstuffs are clearly destined to be replaced by Canadian exports. The wheat production of Manitoba, Saskatchewan and Alberta (western Canada) advanced from 17,000,000 bushels in 1900, to 82,000,000 bushels in 1905, to 119,000,000 bushels in

1910, to 198,000,000 bushels in 1912 and 189,116,000 bushels in 1913.[1] In spite of the high wages offered by Canada's protected industries, more immigrants have been drawn to the farms than to the towns; the surplus of wheat for export has increased. The progress of Canadian exports of breadstuffs towards replacing those of the United States is illustrated in the following table:

COMPARISON OF U. S. AND CANADIAN EXPORTS OF WHEAT AND FLOUR FOR 15 YEARS.[2] 000'S OMITTED

	U. S. Wheat (bu.)	Canada Wheat (bu.)	U. S. Flour (bbls.)	Canada Flour (bbls.)
1913	91,602	93,166	11,394	4,478
1912	30,160	64,464	11,006	3,735
1911	23,729	45,802	10,129	3,049
1910	46,679	49,741	9,040	3,064
1909	66,923	49,137	10,521	1,738
1908	100,371	43,655	13,927	1,963
1907	76,669	25,480	15,584	1,092
1906	34,073	40,399	13,919	1,532
1905	4,394	14,700	8,826	1,321
1904	44,200	16,779	16,999	1,588
1903	114,181	32,985	19,716	1,288
1902	154,856	26,118	17,759	1,087
1901	132,060	9,740	18,650	1,119
1900	101,950	16,054	18,699	768
1899	139,433	10,305	18,485	792

Canadian flour for Great Britain. Canadian flour is largely exported to Great Britain. For instance, in 1912, 2,339,000 barrels went to Great Britain out

[1] Combined estimates of the Provincial Departments of Agriculture, reprinted in Millers' Almanack, 1914-1915, p. 128.

[2] From U. S. Statistical Abstract and Reports of Canadian Department of Trade and Commerce. U. S. figures for years ending June 30, and Canadian figures for years ending March 31.

of 3,735,000 barrels exported. In 1913, 2,880,000 barrels went to Great Britain out of 4,478,000 barrels in all. Boston, with its large steamship tonnage trading with the United Kingdom, should get a good share of this traffic; it has two or three sailings per week to Liverpool,[1] one fortnightly to London and one fortnightly to Manchester.

Discrimination in rail rates on western Canadian flour. Because of a rate discrimination which has passed with little notice, Canadian flour milled in the West is subjected to the American differentials. Until 1913 the only route available for western Canadian flour was via the Canadian Pacific Railroad, all-rail, or Lake-and-rail. All-rail flour, which moved only when the Lakes were closed, moved on an equal rate of 21.5¢ from Fort William to St. John, Portland, Boston, New York, Philadelphia or Baltimore. The same rate carried other grain products. During the summer, Lake-and-rail flour moved via the Canadian Pacific Railroad boats from Fort William to Port McNicoll, the lower Lake port of the railroad, thence via Canadian Pacific Railroad and connections to

[1] However, Liverpool tonnage is more important for grain than flour, for Liverpool is the leading milling center of the United Kingdom and largely grinds its own grain. In 1913 Liverpool was far down the list of the destinations of Canadian flour exported from Montreal (Report of Montreal Board of Trade for year 1913, p. 71):

	Flour Sacks to		
London	800,347	Hamburg	125,053
Glasgow	381,789	Belfast	115,905
South Africa	290,888	Leith	94,351
Naples	249,561	Liverpool	83,845
Bristol	178,272		

Boston, New York, Philadelphia and Baltimore. The Lake-and-rail rate from Fort William to all ports was 14.5¢ per 100 pounds. In 1913 the Lake-and-rail traffic for United States ports was getting too heavy for the Canadian Pacific Railroad to handle, in addition to its own Canadian business; so it invited the Mutual Transit Company, a Lake line owned by a number of New York trunk line railroads, to institute a service from Fort William to Buffalo. Apparently without opposition at the ports of New York and Boston, the regular American differentials were applied to this traffic. The rates from Fort William now read:

		Differential
To New York and Boston	14.5¢	—
To Philadelphia	13.5¢	1¢
To Baltimore	12.5¢	2¢

On other grain products than flour the differentials are higher, namely:

		Differential
To New York and Boston	15.5¢	—
To Philadelphia	13.5¢	2¢
To Baltimore	12.5¢	3¢

The American differentials apply. These are the regular United States export flour differentials on grain products which apply on American shipments from Duluth. Western Canadian grain products are, during the season of open Lake navigation, seven months of the year, withdrawn from the zone of neutral traffic to which they have always belonged and to which they still belong in the winter months, when equal all-rail rates apply from Fort William to all

American ports. The basis on which Lake-and-rail differentials on United States flour are defended is similar to that in the case of ex-Lake grain. All-rail flour from the Middle West and the Northwest has a differential to Philadelphia and Baltimore, due primarily only to their greater nearness to the territory producing this flour. It is argued that Baltimore and Philadelphia should not be deprived of their geographical advantages because of the fact that this flour, during the season of open navigation, chooses a route which is rail-and-water, instead of all-rail. By Lake-and-rail, Baltimore and Philadelphia enjoy no advantage of distance over New York. In the case of such exports for all ports the flour follows the same route to Buffalo; thence the distance to Philadelphia is 406 miles, to New York 399, to Baltimore 397.

No justification of differentials on Canadian flour. Baltimore and Philadelphia cannot claim an all-rail differential on western Canadian flour for export, on which to base a demand for a Lake-and-rail differential, for the all-rail rate is 21.5¢ from Fort William to all United States ports. They cannot claim greater nearness nor a long-established trade built on this rate advantage, for the rate advantage is new and unexpected. The traffic never touches differential territory, for Buffalo is east thereof; all export rates from Buffalo are the same to all United States ports. Boston and New York have reason to institute a complaint before the Interstate Commerce Commission charging discrimination in the matter of Lake-and-rail export rates on Canadian grain products to United States ports. This discrimination against Boston will grow more important, for the milling of Canadian

spring wheat for export is concentrating largely west of the Lakes.

Eastern Ontario flour. The flour milled in eastern Ontario for export is primarily from western grain brought to Georgian Bay (Lake Huron) ports such as Port McNicoll, Tiffin and Goderich. From these points the grain moves on a milling-in-transit rate; that is, it can be stopped at a point en route, milled into flour and forwarded, as if the movement had been a through one. Two of the principal milling centers en route are Peterborough (Ontario) and Montreal. The export milling-in-transit rate on this Georgian Bay grain is 12¢ per 100 pounds to St. John, Portland, Boston or New York. This is the route and the rate on which the larger portion of Canadian export flour for Boston moves. There are no rates on this traffic to Baltimore or Philadelphia.

Canadian flour through United States outlets. The growth of Canadian flour exports via United States outlets is seen in the following table:

CANADIAN EXPORTS VIA U. S. PORTS IN BOND, 000's OMITTED. CALENDAR YEARS[1]

Wheat Flour bbls.	1913	1912	1911	1910	1909	1908
New York	971	771	645	706	466	167
Boston	331	344	231	237	167	130
Philadelphia	237	146	32	58	43	32
Baltimore	82	44	11	2	4	7
Portland[2]	193	239	172	163	122	133

[1] Figures supplied by U. S. Bureau of Statistics. Reprinted in Annual Statistical Reports of New York Produce Exchange.

[2] Portland is perhaps better considered as a Canadian port. It is the winter port of the Grand Trunk, just as its summer port is Montreal. Both Portland and Montreal live on Canadian business.

Boston needs Canadian flour. It is well that the movement of Canadian flour through Boston has increased, for the differentials have seriously decreased the movement through this port of United States flour, which dropped steadily from 862,000 barrels in 1907 to 238,000 barrels in 1913.[1] Boston can view with satisfaction the growth of Canadian milling in eastern Ontario; though unfortunately the center of *export* milling is shifting to the West. Boston will profit if Canadian wheat is eventually admitted free into this country and milled at Buffalo; for though Baltimore and Philadelphia will have on such flour equal rates with Boston, the flour will not have the far lower inland rates to Montreal which the eastern Ontario product now enjoys, nor the lower rates to United States differential ports now carried by flour from Fort William. The Boston steamship lines do not need lower inland rates than other United States ports; they only need an equality.

Canadian oatmeal in bond. The other largely exported Canadian grain product is oatmeal. The export business originates largely in eastern Ontario mills, principally Peterborough; and is milled from both western oats via Georgian Bay and the large local oats crop of eastern Ontario. The Georgian Bay product moves on the same 12¢ milling-in-transit rate

1 U. S. Flour Exported from Boston. Calendar Years. In Barrels

1907	862,000	1911	389,000
1908	727,000	1912	81,000
1909	461,000	1913	238,000
1910	381,000	1914 (4 mos.)	41,000

as wheat flour for export. Boston gets an even larger share of oatmeal than of wheat flour:

CANADIAN EXPORTS OF OATMEAL VIA U. S. PORTS IN BOND. 000's OMITTED. CALENDAR YEARS[1]

	1913	1912	1911	1910	1909	1908
Oatmeal	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
New York .	2,698	1,643	1,718	3,125	5,414	2,574
Boston . .	26,566	32,722	23,588	32,586	24,027	14,994
Philadelphia	262	———	———	367	55	———
Baltimore .	———	459	———	———	161	163
Portland .	8,985	14,906	6,059	11,637	7,089	4,637

[1] Figures supplied by U. S. Bureau of Statistics, reprinted in Millers' Almanack, 1914-1915, p. 134. 1911 figures were missing. The 1911 figures are for the fiscal year, June 30, and were supplied from an Exhibit of the Boston Chamber of Commerce in the last Differential Cases.

CHAPTER X

CANADIAN GRAIN

Canadian wheat all-rail. It is in the matter of Canadian wheat for export, particularly from Buffalo, that the principal discrimination against Boston lies. If Canadian wheat moved and overflowed through Canadian channels, Boston would profit from that overflow. But Canadian routes cannot carry the traffic, and it is seeking the outlet of the least resistance; namely, Buffalo.

Wheat ex-Georgian Bay. Canada has several Buffalos at the eastern end of Lake Huron. From all these ports there have been ex-Lake rates to no port south of Boston. For instance, during the past winter the rates have been, on wheat:

EX-LAKE RATES ON WHEAT, FROM CANADIAN LAKE HURON PORTS

To	Per bushel
St. John	5.5¢
Portland	5.5¢
Boston	6.0¢

Boston well off on Georgian Bay wheat. In years gone by, Boston has always had the same ex-Lake rates from Georgian Bay as St. John and Portland have had. The recent discrimination of 0.5¢ per bushel is no doubt a result of the attempt to force Canadian export traffic to move through Canadian ports. But, at any rate, Boston has been as well off as her North

Atlantic rivals in the matter of all-rail Canadian grain, and better off with regard to export grain from the lower Canadian Lake ports.

How Canadian wheat moves. Canadian export wheat originates west of Winnipeg. The harvest is from two to four weeks later than in the United States Northwest, so the Canadian wheat is moved with all speed to the head of the Great Lakes, to Fort William (Canadian Pacific and Grank Trunk Pacific) and to Port Arthur (Canadian Northern). There are two months and a half of shipments down the Lakes in freighters, from about September 15 to December 1, when the Lakes close. Long before December 1 all the elevators at the lower Lake ports have been choked with grain, and the late arriving boats lie in the lower ports storing their grain until the elevators have been relieved, by shipments to the seaboard, and can accommodate more grain. Other freighters winter in the upper Lake ports, storing grain that has arrived after the Lakes were closed and has found the elevators full. Finally, the interior elevators in the West are held full during the winter. The export wheat moves during the winter out of the lower Lake elevators, which are then free to handle grain from the head of the Lakes when navigation opens.

Small all-rail movement. The all-rail movement to the seaboard from the Canadian west is largely confined to wheat that cannot be sent down the Lakes before the season of navigation is over, or that cannot be held until that season opens again, about the last week of April. This all-rail movement, in past years, has averaged 8,000,000 bushels over the single track line of the Canadian Pacific.

Insufficient Canadian elevator capacity east of

Lakes. Neither the elevator capacity of the lower Canadian Lake ports, nor that of the Canadian seaports is capable of handling this grain as fast as it is moved through the western elevators and down the Lakes. This is apparent from an examination of the storage capacity of the elevators in question. It will be remembered that when Montreal is open, Halifax, St. John and Portland are not; and vice versa.

CAPACITY OF GRAIN ELEVATORS IN CANADA[1]

	Bushels
In Western Canada	83,142,000
At Fort William and Port Arthur	41,035,000
At Georgian Bay ports	12,800,000
At Canadian seaports:	
Montreal	7,000,000
Halifax	500,000
St. John	1,500,000
Portland	2,500,000

Grain must overflow to Buffalo. It is perfectly natural that, when the rush of grain is heavy in the fall, the 22,500,000 bushel storage capacity of Buffalo should be sought, particularly in recent years when the capacity is less utilized by the disappearing exports of American wheat. Buffalo is a better place to store wheat for the winter than Georgian Bay, because it has ex-Lake rates to the ports and ocean services of Boston, New York, Philadelphia and Baltimore; whereas there are ex-Lake rates from Georgian Bay only to ports St. John to Boston inclusive.

Fort William to Montreal. All-water. In the

[1] Figures from Millers' Almanack, 1914-1915.

spring, when navigation opens, no port can make any export bookings of Canadian grain from the elevators at the head of the Lakes until the capacity of Montreal liners is booked full. That is because of the cheap all-water route to Montreal via Great Lakes and St. Lawrence River. Over this route grain may move, in steamers drawing 14 feet, all the way from Fort William to Montreal; or may move to Port Colborne (opposite Buffalo) in a larger steamer drawing 21 feet and carrying up to 400,000 bushels, and there be transhipped into a 14-foot steamer capable of passing through the locks of the Welland and St. Lawrence canals. In either case there is a summer rate averaging 5¢ or less per bushel. Transfer to the steamer at Montreal costs 0.25¢. Insurance averages 0.6¢ per bushel. So the cost to put Fort William grain on board a Montreal steamer is about 5.85¢ per bushel.

Fort William to Montreal. Lake-and-rail. The Grand Trunk has a summer ex-Lake rate from its Georgian Bay ports to Montreal of 5¢ per bushel, including elevation at the Lake port and at Montreal. This puts Fort William grain on board the steamer at Montreal for about the following cost:

COST OF PUTTING FORT WILLIAM GRAIN, VIA GEORGIAN BAY, ON MONTREAL STEAMER

Lake rate	1.25¢
Lake insurance	0.30¢
Ex-Lake rate	5.
	6.55¢

Fort William to Buffalo. This coming summer the ex-Lake export rate from Buffalo to New York or Boston is to be 5.5¢ per bushel. The cost of getting

Fort William wheat on board a Boston or New York steamer will be about as follows, per bushel:

Lake rate	1.0¢
Lake insurance	0.3¢
Ex-Lake rail rate	5.5¢
Elevation, etc., at seaboard	0.9¢
	7.7¢

Limitations of Montreal. If there were an indefinite supply of 14-foot Lake steamers to carry grain to Montreal, if there were indefinite elevator capacity at that port, and if grain always moved abroad in cargo lots, tramps would be brought by the hundreds to Montreal, and all Canadian wheat in the summer would move through that port. Fortunately for the American North Atlantic ports, the limitations indicated operate at Montreal during the summer season. Then, late in November, when the movement of the new crop is just in full swing, Montreal freezes up for five months, until the end of April. At all times there are liners at the ports from Boston to Baltimore which are seeking Canadian wheat to fill the space made empty by the disappearance of American wheat exports.

Movement of Canadian wheat in bond. As a result, in spite of higher inland rates, Canadian wheat is seeking the outlet via United States ports to an increasing degree; and seeking the outlet via Buffalo. Of 132,000,000 bushels of wheat shipped from Fort William and Port Arthur in the 1913 season of navigation, 68,000,000 were destined for American ports, nearly all to Buffalo.[1] In the past two years the

[1] Report of Montreal Board of Trade for 1913, p. 63.

exports of Canadian wheat via Canadian and United States ports have been as follows:

EXPORTS OF CANADIAN WHEAT, IN BUSHELS, BY PORTS.[1] 1911-1912-1913. 000's OMITTED

	1913	1912	1911
Montreal	33,706	30,652	17,718
Halifax	287	——	——
St. John	8,236	8,061	6,432
Portland	8,223	5,763	3,440
Total Canadian	50,452	44,476	27,590
Boston	14,334	11,102	6,744
New York	22,216	22,631	13,862
Philadelphia	12,797	12,082	5,246
Baltimore	12,690	6,606	3,598
Total American	62,037	52,421	29,450

Overflow via Buffalo bound to continue. It will be observed that the United States ports are getting more and more of the Canadian wheat exports. This tendency cannot but proceed. In the days when American wheat was being exported at the rate of 200,000,000 bushels annually, the capacity of all ports, from Boston to Galveston, was being called upon. There is no reason to suppose that the Canadian exports, which will soon reach and exceed this figure, can be forced through Montreal during seven months of the year; and for five months through Portland and St. John

[1] Figures for American ports from United States Bureau of Statistics, reprinted in Millers' Almanack, 1914-1915, p. 134. St. John and Montreal from Boston Chamber of Commerce Reports. Montreal and St. John figures are the total exports and no doubt include a small amount of American wheat. This American wheat of Montreal and St. John more than equals the missing wheat exports of Halifax, figures for which (except 1913) are not available. Canadian totals are, if anything, too high.

and Halifax. Hence the vital necessity to Boston of guarding the neutrality of Buffalo, the American outlet of this traffic.

Buffalo not in differential territory. It will be recalled that Buffalo is not in differential territory, which does not begin until just east of Erie. Buffalo has always had rates to the seaboard lower than the other so-called trunk line termini: Pittsburgh, Wheeling, Salamanca, etc. This is because Buffalo has had the Erie Canal to compete with. Other trunk line termini have had rates to the seaboard 60% of the rates from Chicago; Buffalo rates are 50%. Differential territory begins with 60% points. As Buffalo is not in differential territory, there is no reason why traffic from or via Buffalo should be subjected to the port differentials, designed to affect only that competitive zone. Any differential rates from Buffalo, favoring southern ports, require a special justification.

East of differential line non-competitive. The territory east of the differential line is regarded as non-competitive. This has always been taken for granted in the cases before the Interstate Commerce Commissioner Clark in his 1912 Decision on the Differential Cases, p. 67:

> There is a heavy movement of import and export traffic through the several ports which has destination or origin at the port or at points not situated in the differential territory. In making the differential agreement, it was apparently conceded that the territory east of the Buffalo[1]-Pittsburgh line was largely non-competitive, and that the import and export traffic having destination or origin therein would and should find its way to the natural or most convenient port.

[1] The line runs west of Buffalo.

Buffalo is New York and Boston territory. Historically, geographically and commercially, Buffalo is local New York and Boston territory. For decades it was dependent upon transportation on the Erie Canal and the following roads to New York: Lehigh Valley; Delaware, Lackawanna & Western; Erie; New York Central. It was not until 1900 that any road having a terminal in Baltimore or Philadelphia ever got into Buffalo. In that year the Pennsylvania bought its way in; no other Baltimore or Philadelphia road has gained an entrance since. In spite of the fact that Buffalo, and traffic via Buffalo, is naturally tributary to New York and Boston, concessions have been made to the southern ports on this traffic, with respect to American grain or grain products.

Equal rates to all ports on local Buffalo exports. The basis for this has always been that that traffic originated in differential territory and, as there was an all-rail differential on it in favor of the southern ports, they deserved a differential even if it moved down the Lakes. The clearest expression of this principle is in the Lake-and-rail rates on grain products for export. This traffic moves on through rates, uniformly 2¢ per 100 pounds below the all-rail rates and carrying the full all-rail differentials. There was a time when there was a similar differential on flour milled at Buffalo and shipped thence locally for export. The reason was that this flour was made of grain presumably originating in differential territory. In 1898 this export rate was 1¢ per 100 pounds lower to Philadelphia and Baltimore than to New York and Boston.[1] By 1905, this Buffalo flour differential had

[1] 1898 Differential Decision, p. 617. However, it is likely that this differential was purely a nominal one. In the 1904-1905 Differential

been removed, the local character of the shipment from Buffalo preponderating over the consideration that the raw material for the flour originated in the West. By 1905, and ever since, with the exception of ex-Lake grain, there were no rates from Buffalo for export that were not the same for all ports, Baltimore and Boston inclusive. On page 58 of the 1905 decision, Commissioner Prouty states:

> Buffalo is not in differential territory, and so far as we can learn, no differential rates apply to the various ports.

The export rate structure from Buffalo, then, is an equalization of Baltimore, Philadelphia, New York and Boston, the equalization being really a concession to southern ports, as the Buffalo territory is not competitive. What is the reason why these southern ports should have a differential on ex-Lake grain?

Ex-Lake grain, says I. C. C., is local movement. This ex-Lake grain does not move from the West to the seaboard on a through rate or a through bill of lading. It moves on local or proportional rates from its western point of origin to a Lake port such as Duluth or Milwaukee or Chicago. There it is rebilled and moves east, at the current charter rate for Lake boats, to the Buffalo elevator, where it is stored and shipped locally, on the Buffalo "at-and-east" export rate, to the seaboard. No one can claim that this is a through movement, in view of the final decision of the Interstate Commerce Commission itself thereon. The 1911 Complaint of the Chicago Board of Trade demanded that the carriers east of Buffalo should be

Case Hearings, New York railroad officials testified that they considered Buffalo-New York traffic intra-state, and that they did not file with the Commission the tariffs on which it moved.

required to accept, as their at-and-east rate on ex-Lake grain, their east-of-Buffalo proportion on all-rail grain. Commissioner Prouty in his decision refused to grant the contention. He held that the *divisions* of through rates accepted by carriers on competitive traffic, were not a measure of a reasonable *local* rate. The Buffalo grain rates for export are, then, local rates. It obviously requires some exceptional justification to except ex-Lake rates from the uniform Buffalo export rate structure: one of equality to all ports.

Ex-Lake based on all-rail grain differential. The justification put forward has already been mentioned. It is that this grain originates in United States differential territory and that the southern ports ought not to have their advantage of nearness to this territory, expressed in the all-rail grain differentials, defeated by a movement of the grain down the Lakes. The all-rail rates have always been considered as expressing the rightful claim of the southern ports to the Middle West and all traffic originating there.

Ex-Lake grain rates before 1898. The 1882 decision of the Arbitration Commission made no mention of ex-Lake rates because the ex-Lake traffic in grain, by rail, was insignificant at that time. Prior to 1891 the railroads did not care to compete with the Erie Canal. In 1893 the question of ex-Lake differentials first arose. Off and on, the Baltimore and Philadelphia roads were granted differentials varying from ½¢ to ¾¢ per bushel. The New York roads continually opposed the application of this differential from Buffalo, whatever rates the Baltimore & Ohio saw fit to give from its Lake port of Fairport, or the Pennsylvania from its Lake port of Erie. Whenever there was any traffic

moving, the New York roads cut their rates from Buffalo to meet the Fairport and Erie differentials. It has been seen that these New York roads considered ex-Lake grain to New York as intra-state traffic, not subject to the jurisdiction of the Interstate Commerce Commission or the maintenance of rates.

From 1898 to the 1905 Case. In 1896 the Joint Traffic Association was formed. In 1896-1897 it published a 1¢ ex-Lake differential on wheat, corn and rye, to Philadelphia and Baltimore. The New York Produce Exchange protested strongly, and in 1898 the Joint Traffic Association published identical rates for all ports. The Association was dissolved by law in 1898. In 1898-1903, except for a short period in 1902, there were equal rates to all ports. In 1902 the Baltimore & Ohio instituted a 0.4¢ per bushel differential from Fairport to Baltimore, under the Buffalo-New York rates. The other roads protested, but the Baltimore & Ohio had no facilities for doing any large business through Fairport, and the rate was not met. In September, 1903, the Lehigh Valley issued a tariff giving equal rates to all ports, but providing in a footnote for a differential of 0.4¢ per bushel on grain delivered in Philadelphia to a steamship alongside the elevator (Philadelphia & Reading). The Pennsylvania soon filed a duplicate of this tariff, applicable both from Buffalo and Erie. The New York roads met these cuts and a rate war ensued, with the result that in January, 1904, the ex-Lake rates got down to 0.2¢ per bushel. These low rates had no time to do great harm to railroad revenues, as they applied only during the early part of 1904, when the roads were cleaning up the storage at Buffalo. With the approach of the opening of navigation and the rush of grain down the

Lakes, these rates were referred, for temporary arbitration, to Mr. McCain,[1] Chairman of the Trunk Line Association, pending their final arbitration by the Interstate Commerce Commission, to whom the railroads referred the matter as part of the 1904-1905 Differential Case. It can be properly said that the first effective system of ex-Lake export grain differentials from Buffalo began as the result of that 1904-1905 Case.

1898 decision ties ex-Lake and all-rail differentials. In its 1898 Differential Case decision the Commission did not pass upon ex-Lake rates, for they were no part of the proceedings. However, Commissioner Prouty, on pages 684-685 of that decision, does mention them.

> This ex-Lake grain traffic originates at the same points as the all-rail traffic and is, therefore, properly regarded as competitive. If, therefore, our decision in reference to the all-rail differentials is correct, it seems to follow all the more that the ex-Lake differentials should not be disturbed by us.

The 1899 all-rail reduction. Between 1898 and 1905 an event occurred indicating that the export grain differentials were too high. It will be recalled that in February, 1899, the roads voluntarily reduced by one-half the all-rail grain differentials. It was admitted that there should remain a differential on berth or parcel lots, while in the case of cargo lots it was superfluous, charter rates out of all ports being the same. It was impossible to distinguish between grain carried for berth or cargo shipment, respectively; so the roads assumed that either method moved about the

[1] McCain arbitrated equal ex-Lake rates to all ports.

same volume of grain, and they cut the all-rail differentials in two as a compromise.

1905 decision, fixing present ex-Lake differentials. The 1904-1905 Case is the most important one in this connection, for it fixed the ex-Lake differentials, which have applied ever since. Commissioner Prouty, on page 56 of that decision, recognizes the justice of the Lake-and-rail differential on flour, because it originates in the West and moves on a through rate. He states (page 58) that the distances from Buffalo to New York, Philadelphia and Baltimore are almost exactly the same, about 400 miles each.[1] He admits that Buffalo is not in differential territory and no differential export rates apply from there to various ports. But (page 78) the origin of the grain—all-rail or ex-Lake—is the same in both cases and the traffic is strictly competitive. It should not be regarded as originating in Buffalo, since it is only there temporarily, in transit. Yet, he says, when this grain arrives in Buffalo, there is no reason growing out of the greater proximity of Baltimore and Philadelphia to the grain fields which justifies or requires a lower rate to these ports. The cheapest way in many cases for grain to reach the seaboard, he says (page 74), is by Lake to Buffalo, thence rail to the seaboard. It is a natural advantage of New York to be located on this

[1] The present short line distances to the various ports are:

DISTANCES FROM BUFFALO TO ATLANTIC PORTS

Port	Via	Miles
To Boston	West Shore-B. & M.	471
New York	D. L. & W.	399
Philadelphia	Pennsylvania	406
Baltimore	Baltimore and Ohio	397

route; by this route the cost of transportation from Buffalo to New York is no greater than to Baltimore or Philadelphia.

Page 74. The question of ex-Lake grain was incidentally referred to in the former case (1898) but not much considered. It was there said that this grain originated at the same point whether it reached the seaboard by the all-rail or the Lake-and-rail route, and that . . . . the same reason which would justify a differential in one case would apply in the other. It would follow from this reasoning, that the differential in both cases ought to be the same. Further reflection shows that the position taken in that opinion is not altogether tenable.

Page 69. It has been seen that the purpose of the differential is to distribute this competitive traffic between the different ports. . . . . If this grain reaches the seaboard by the all-rail route, the advantage of Baltimore is taken away in favor of New York and Boston to the extent of 1.5¢ per 100 lbs.,[1] and we think that when the grain arrives in Buffalo it is proper for the same reason to take away something from the ocean advantage of New York in favor of Baltimore.

Exact weight of all-rail in ex-Lake rates. As a result of these considerations, Commissioner Prouty fixed a differential of 0.3¢ per bushel on ex-Lake grain for export, except oats and barley, applying to Philadelphia and Baltimore under New York and Boston. The important differential is the 0.3¢ per bushel, applying to wheat and corn. The 0.3¢ is gotten by halving the lower all-rail differential on wheat, that of Philadelphia, amounting to 1¢ per 100 pounds, 0.6¢

[1] Referring to the reduction of the all-rail grain differential by the railroads in 1899. The Commission has always held that Baltimore's greater nearness to typical western points justified at least 3¢ differential, probably more.

per bushel. It is interesting to see that this halving of the lower all-rail differential indicates that the Commissioner considered as of exactly equal weight the contention of Baltimore and Philadelphia that the grain was from differential territory, and the contention of New York and Boston that it was a local shipment from Buffalo. There is no Baltimore and Philadelphia argument to balance the latter contention in the case of Canadian grain; for it does not come from differential territory.

1912 decision re-affirms ex-Lake rates. In his 1912 decision, Commissioner Clark simply re-affirms the Prouty ex-Lake differentials. He meets the argument that New York is nearer to Buffalo than Philadelphia, and practically as near as Baltimore, with the words:

> This question cannot be determined upon the basis of distance alone. If it were, Baltimore would be given more advantage than it now has. The interests of all concerned and the matter of lawful and controlling competition must, as will appear, be considered.

Baltimore's claim to ex-Lake rates. Baltimore and Philadelphia interests have repeatedly stated that their claim to an ex-Lake differential was based on the fact that the ex-Lake grain came from territory with regard to which their natural advantage had been for thirty years testified by their all-rail differentials. In the 1904-1905 Hearings (pages 1748, 1754, 1755), Mr. Thayer, Vice-President of the Pennsylvania, makes just this claim. On pages 2606 seq., Mr. Wight, Traffic Manager of the Baltimore & Ohio, states the case more in detail:

> If we did not have an ex-Lake differential, we should ask for a lower rate all-rail, as we should not be able to carry any

grain to Baltimore in the season of navigation. Rail lines from Buffalo let us have a differential from Fairport, rather than have us reduce on all-rail rates to meet competition. A great deal of grain originating in Indiana and Illinois, nearer Baltimore than New York, goes on the Lakes at Chicago or Toledo, and thus by Lake to Buffalo. We claim a right to an ex-Lake differential on this grain; we have a natural right to grain from this territory, Southern Ohio, Indiana and Illinois.

Philadelphia's claim. In the 1912 Case a Pennsylvania official, Mr. Bates, made the same plea for ex-Lake differentials:

> I think the wheat or the grain moving through Buffalo originates in the western territory, the differential to Baltimore and Philadelphia applying on the all-rail grain, and the movement through Buffalo is more or less competitive and in the same category as wheat coming from the same points of origin in a general way.

Minor differential object: to divide United States grain. This dependence of the ex-Lake on the all-rail differential has been emphasized because it is really at the bottom of the second justification of the ex-Lake differentials; namely, the exigencies of competition and the division of export traffic. Once admit the purpose and propriety of parceling out the grain traffic of the Middle West by means of the all-rail differentials, and it is impossible not to justify a similar ex-Lake differential to parcel out this same traffic among the various ports.

Baltimore has at times interjected a sentimental plea into her claim to differentials from the Middle West; she has enumerated the sacrifices which Baltimore has made to make possible the building of the

Baltimore & Ohio, and the intimate trade relations between Baltimore and the Middle West ever since Maryland and Virginia settled it.

These justifications do not apply to Canadian grain. Obviously, none of this reasoning applies to Canadian grain via Buffalo. Canada cannot be said to be naturally tributary to Baltimore or Philadelphia. These cities made no costly sacrifice to build railroads into the Canadian Northwest; nor can they claim to have settled it or established with it bonds of trade which must not be disturbed. The Commission has never sanctioned the parceling out of Canadian grain among American seaports. The Commission is free to take any stand it chooses upon rates applying to this grain. Above all, the ex-Lake rates on Canadian grain were not based on any system of all-rail differentials. Such all-rail differentials are, as has been seen, the evidence and measure of the superior rights of the southern ports in American grain traffic.

CHAPTER XI

CANADIAN GRAIN (Concluded)

Equal all-rail rates to United States ports. Canada has always been considered essentially as Boston territory. Boston has, of all ports, the closest commercial relations with Canada, being dominant in the eastern part of the Dominion, particularly in the Maritime Provinces. Until 1912 the only all-rail route open for the exportation of Canadian grain via American ports was north of the Great Lakes, over the line of the Canadian Pacific. The export rates from Fort William[1] were the same to all ports, St. John to Baltimore inclusive, 23¢ per 100 pounds, and such are the rates by this route today. Grain for Boston via this route is carried by the Canadian Pacific to Newport, Vt., and there handed over to the Boston & Maine. If destined to New York, Philadelphia or Baltimore, the Canadian Pacific Railroad can carry the grain only to Hamilton, Ontario, where two other carriers unite to get it to Buffalo, whence it proceeds to the seaboard by the usual routes.[2] The Canadian Pacific Railroad obviously has the longest haul and the largest revenues when it carries this grain to Newport for Boston export. This is what is meant when it is said that Boston is the natural outlet for the overflow of Cana-

[1] The western Canadian grain rate structure is based on Fort William or Port Arthur. All-rail export rates read from Fort William.

[2] See Map III, following text.

dian traffic. In reality it is a concession for the Canadian Pacific Railroad to give as low rates to New York, Philadelphia and Baltimore as to Boston.

Distances from Fort William to United States ports. The distances to the four American ports are almost the same and are as follows:

ALL-RAIL DISTANCES FROM WINNIPEG VIA CANADIAN PACIFIC RAILROAD TO U. S. PORTS, BALTIMORE TO BOSTON INCLUSIVE

I. Boston

		Miles
Winnipeg-Newport, Vt. . . .	C. P. R.	1,522
Newport-Boston	B. & M.	231
		1,753

II. To New York, Philadelphia and Baltimore

1. To Buffalo

Winnipeg-Sudbury	C. P. R.	976
Sudbury-Hamilton	C. P. R.	300
Hamilton-Welland	T. H. & B.	38
Welland-Buffalo	M. C.	23
		1,337

2. Thence to

Baltimore		Philadelphia		New York	
To Buffalo.....	1337	To Buffalo.....	1337	To Buffalo.....	1337
To Balto. (Penna)	397	To Phila. (Penna)	406	To N.Y. (D.L. &W.)	398
	1734		1743		1735

Ex-Lake differentials on Canadian wheat pass unnoticed. All the while that this equality of all-rail rates was applying on all-rail wheat to United States ports for export, there were being applied from Buffalo, on Canadian grain carried by boat from Fort William, the regular ex-Lake differentials on American grain. That is, Baltimore and Philadelphia were being allowed to extend ex-Lake differentials—based on

all-rail differentials on American grain—to this new traffic from a territory in regard to which they enjoyed no all-rail differentials. It was a serious oversight for Boston and New York to let this discrimination creep in; but it is not too late to remedy it now.

The presumption for equal ex-Lake export rates to United States North Atlantic ports on Canadian wheat via Buffalo was, therefore, established by the equal export rates all-rail from Fort William via the Canadian Pacific Railroad.

In 1912 all-rail wheat overflows via United States outlets.. In 1912 the Grand Trunk Pacific and Canadian Northern had completed extensive networks of railroads west of Lake Superior. The Grand Trunk Pacific took Fort William as its Lake Superior port, the Canadian Northern used Port Arthur. The Canadian Northern now also reaches Duluth over its own rails. In the fall of 1912 a large harvest was about four weeks late and navigation on the Lakes closed long before the usual quota of grain had been moved down.[1] Grain kept coming in from the West, but all the elevators at Fort William and Port Arthur were full. This late grain had to move east all-rail. The Canadian Northern and the Grand Trunk Pacific had no rail lines east of Port Arthur and Fort William. They had no interest in handing the overflow over to their rival, the Canadian Pacific Railroad. The latter itself saw that it would not be able to handle, over its single track line, its own wheat that kept coming.

Wheat runs into United States differentials. So all three Canadian roads opened this traffic to the American outlets. They did it by applying the Fort William

[1] In the fall about 10,000,000 bushels per week are moved to the head of the Lakes, after the harvest is well under way.

basis from the West to Minneapolis and Duluth. From Minneapolis and Duluth the routes east are via Chicago, the rate being 10¢ from either of these points to Chicago, whence the regular American differentials automatically apply to the seaboard. The rates to the seaboard from Minneapolis, Duluth and Fort William, which have the same rates from western Canadian points, were as follows:

RATES ON WHEAT TO THE SEABOARD FROM FORT WILLIAM, MINNEAPOLIS AND DULUTH, ALL-RAIL FOR EXPORT. CENTS PER 100 LBS.

To	From Ft. William	From Minneapolis and Duluth via Chicago
St. John	23¢	23¢
Portland	23¢	23¢
Boston	23¢	23¢
New York	23¢	23¢
Philadelphia	23¢	22¢
Baltimore	23¢	21.5¢

United States all-rail routes and differentials temporary. The Buffalo ex-Lake export differentials precede these all-rail differentials via Chicago and so cannot be based upon them. The opening of the American all-rail routes was accidental and is probably temporary. It is not likely that the Canadian Pacific Railroad double tracking is being completed, or the Grank Trunk Pacific and Canadian Northern lines east from Winnipeg are being made ready for operation in the winter of 1914, without the expectation of utilizing these rails to capacity carrying Canadian grain during the winter. The rapid increase of elevator capacity at the Canadian head of the Lakes[1]

[1] This elevator capacity grew from 25,700,000 bushels in 1913 to 41,000,000 bushels in 1914.

will make it necessary to move less volume all-rail. If the Canadian roads can handle this all-rail movement they will not open it to American routes as heretofore. Even if they keep American outlets open, they will adjust their rates east of Fort William and Port Arthur. With 23¢ rates applying out of these centers to all ports from New York to St. John, and 21.5¢ out of Minneapolis and Duluth to Baltimore, certainly none of the full-cargo business can move except via Baltimore. It does not look as if the Canadian Government, which has heavily subsidized the Canadian Northern and the Grand Trunk Pacific, would countenance a rate structure that would force wheat out via American roads; or as if the Canadian roads would do this in the first place. If a 21.5¢ rate is applied to St. John and Portland, it will no doubt also be applied to Boston.

That is, it is very unlikely that the present Baltimore and Philadelphia all-rail differentials on Canadian export grain will stand after the three Canadian roads all have their rail connections complete to the East. These present accidental differentials are not based on any advantage of nearness, railroad domination or close commercial relations applying to Baltimore or Philadelphia. Hence they are no justification for demanding an ex-Lake differential on Canadian grain.

Canada called Boston territory. Surely there must be some territory, outside of New England, for which Boston may compete on equal terms. The port, as often as it appears in a Differential Case, is warned off differential territory. In his 1912 decision, Commissioner Clark, on pages 65, 66 and 68, reminds Boston of the disadvantage from which it suffers in having no trunk line. On page 68 he uses the following words

to explain Boston's small proportion of Lake-and-rail export flour:

It would appear that this tonnage moved in quite equal volume to the ports of New York, Philadelphia and Baltimore. Obviously it would require some unusual condition or strong inducement to attract this business to Boston, especially in view of the fact that the main trunk lines reaching Baltimore and Philadelphia and New York have their own boat lines on the Lakes.

On page 63 he states:

It is urged that the all-rail differentials applying at Baltimore and Philadelphia, which are greater than the ex-Lake differentials, give Philadelphia and Baltimore a practical monopoly of the all-rail export grain as against Boston. It is to be noted, however, that substantially all of the all-rail export grain reaching Philadelphia or Baltimore is transported from points of origin or primary markets over the Pennsylvania or Baltimore & Ohio systems, neither of which reaches Boston.

On page 66 he implies that Canada is the territory in which Boston may have an interest.

Every road desires to get the longest possible haul on the traffic which it transports, and therefore the Boston & Maine, the Grand Trunk and the Canadian Pacific naturally prefer to see the traffic moving through Boston.

In the docket of the 1912 Case, page 1712, Mr. Charles Wight, Freight Traffic Manager of the Baltimore & Ohio, stated:

Boston has a large territory, the New England territory as well as the Canadian territory, from which to draw, and should be satisfied therewith.

Boston has right to equal rates on Canadian traffic. Baltimore and Philadelphia have expressed surprise that Boston should ask equal export rates with them on steel from Pittsburgh, which they wish to regard as local territory. They should not be surprised to see Boston demand merely equal rates with them on traffic from territory which they admit is Boston's own. If the ex-Lake rates on American grain are made to be in accord with American all-rail differentials, ought not the ex-Lake rates on Canadian grain accord with a Canadian all-rail export structure of equality to all ports?

How Canadian wheat is flowing through Baltimore. The real effect of the discrimination existing is just coming to light, as the volume of Canadian wheat exports swells. In the 1911-1912 Hearings, Mr. Jackson, a Baltimore grain exporter, testified as follows, speaking to the Boston counsel:

> There are four steamers to load from Baltimore in a few days with Canadian ex-Lake wheat, on which the differentials are so small that it could easily have been exported via Boston if the Boston exporters had been enterprising.

Apparently the movement of Canadian wheat through Baltimore is a regular one, such as to attract steamship lines that operate through the entire year. The following is significant in the Report of the Baltimore Chamber of Commerce for the year 1912, pages X-XII:

> Western hard winter wheats have moved through here freely for export and Canadian wheat has furnished over 68%[1] of our exports, as there was an ample supply and a good demand for it in the spring and also in the late autumn.
>
> [1] 40% in 1911.

. . . . . Repeated efforts on our part with managers of various steamship lines have resulted in assurances of improved service from here in the near future. The carrying trade has been profitable for some time past and, as large quantities of Canadian grain will have to seek an outlet through Atlantic ports, even when our home crops are small, more frequent sailings will probably be arranged for than we have had in the past few years.

Canadian wheat through United States Ports. The manner in which Baltimore and Philadelphia have gained upon Boston in the handling of Canadian wheat for export is shown in the following table:

EXPORTS OF CANADIAN WHEAT THROUGH U. S. PORTS, 1904-1913 INCLUSIVE. IN MILLIONS OF BUSHELS[2]

	New York	Boston	Phila.	Balto.	Portland
1913 . .	22.6	14.3	12.8	12.7	8.2
1912 . .	22.6	11.1	12.1	6.6	5.8
1911 . .	13.9	6.7	5.2	3.6	3.4
1910 . .	7.5	5.5	4.3	2.0	4.8
1909 . .	5.6	8.3	3.9	0.7	5.4
1908 . .	4.5	8.0	5.0	0.4	5.4
1907 . .	4.0	7.7	2.5	0.4	4.9
1906 . .	5.1	9.2	2.1	1.2	6.2
1905 . .	1.2	2.1	0.9	0.003	2.5
1904 . .	2.1	2.7	0.9	0.3	4.4

The case of Boston and New York. Canada is going the way of the Middle West—to the differential ports. If action is to be taken, now is the time to take it. Boston and New York have ground for complaint before the Interstate Commerce Commission that they are being discriminated against in the matter of

[2] Figures from U. S. Bureau of Statistics. 1904-1907 figures for fiscal years, reprinted in Export Exhibit 16 of Boston Chamber of Commerce in the 1912 Differential Case. Figures 1908-1913 for calendar years, reprinted in Millers' Almanack, 1914-1915.

differential Lake-and-rail export rates on Canadian flour from Fort William and Port Arthur, via Buffalo. They have cause for complaint of discrimination in the matter of ex-Lake grain rates from Buffalo on Canadian grain for export. The two ports should proceed jointly in the matter and claim that these export rates on Canadian grain and grain products must be made to correspond to the general Buffalo export rate structure.

Buffalo versus Erie and Fairport. The ex-Lake grain rates are the important matter. In regard to them, there are three difficulties to be met with. First, the differential must be abolished for all lower Lake ports. The Pennsylvania has a Lake port and elevators at Erie, Pa., just west of the differential line. The Baltimore & Ohio has an elevator at Fairport, Ohio. It and the Pennsylvania might claim that they had a right to take a differential on ex-Lake grain shipped from these ports in differential territory, even if the Commission were to equalize the ex-Lake rates from Buffalo to all ports. But the claim of Baltimore and Philadelphia has always rested on the origin of the traffic in question. If the origin, not the Lake port, is determining when differential traffic passes through a neutral port (Buffalo); then origin, not Lake port, must be determining when neutral (Canadian) traffic passes through a differential port. Moreover, all the Erie ports were tied together in the 1905 decision fixing ex-Lake rates. On page 75 of that decision, Commissioner Prouty says:

> This traffic may move through either Erie, Fairport or Buffalo. Fairport and Erie are in differential territory, so that rates from these points would be, upon the ordinary

basis, lower to Philadelphia and Baltimore than to New York. But it was said in testimony that with respect to this ex-Lake grain these three ports should be treated alike; and such is our opinion. To apply a lower rate to Fairport or Erie would be unjust to Buffalo.

The three ports will remain together. If the Commission prescribed equal ex-Lake rates on Canadian wheat from Buffalo, on the ground of neutrality of territory from which the traffic came, it is not likely that the Pennsylvania and the Baltimore & Ohio would plead a technicality to justify them in starting a rate war to put Erie and Fairport on a different basis from Buffalo; especially in these days when the railroads plead depleted revenues from unremunerative rates.

Distinguishing between United States and Canadian wheat at Buffalo. The second question is: If Canadian wheat is admitted free into this country, will it be possible to distinguish between Canadian and American wheat? It should be possible, for Canadian and American wheat are of different grades, the Canadian grades being higher and better. In the case of Canadian grain via Duluth there is some mixing with the American product. But most of the Canadian grain via Fort William and Port Arthur reaches the seaboard with its "identity preserved." Hence it should not be difficult for the roads to ascertain whether the wheat is Canadian and could properly claim the Baltimore ex-Lake rate to Boston, or whether it is American and must pay 0.3¢ per bushel higher.

Support of Boston roads. Finally, could the support of the Boston railroads be counted on? In the last Differential Case they joined the Boston Chamber of Commerce in an attempt to gain an equalization

with Baltimore of all export rates, including those on ex-Lake grain. There is no reason to suppose that they feel differently now. They cannot look with satisfaction upon Boston's arrested growth as a freight port; it is small compensation to them that it is rapidly developing as a transatlantic passenger port. In a very important item of traffic, and one that soon will be the most important one, Boston's roads would have the equality with southern ports which they have sought. Earnings of the Boston railroads from the proposed reduced ex-Lake rates would be larger than they are at present on all-rail grain from the West. At present, for instance, the Baltimore rate on ex-Lake wheat is 5.2¢, of which 0.5¢ is given to the Buffalo elevator, leaving 4.7¢ to prorate among the carriers east of Buffalo. The rate from Chicago on all-rail wheat is 13¢ per 100 pounds, 7.8¢ per bushel. Of this the carriers west of Buffalo get 48%, or 3.744¢, leaving only 4.056¢ to be divided among the carriers east of Buffalo.

To win the case would solve Boston's problem. If Boston can present and win the case outlined, involving ex-Lake export rates on Canadian grain, the port's freight problem is solved. It will load out of here the scores of tramps which must annually go to the differential or cotton ports seeking out-cargo. It will see its European services doubled in five years. It will supply liners with the cargo they seek and at inland rates such that they need make no sacrifice in ocean rates in order to bring traffic through Boston. On every 100,000 bushels of ex-Lake Canadian wheat the steamships took through Boston they could earn $300 more than at present. (100,000 x 0.3¢.) The foundation will be laid for the reconstruction of the Boston

export grain trade. It will be possible to do what a leader of the New York grain trade characterized as Boston's need: "to colonize grain merchants in Boston." Boston's grain exporters, except one, did not disappear willingly; it was because the old nominal differential rates on western grain hardened and were observed as real differentials, which cut the exporters off from the full-cargo business and handicapped them in the liner business at this port. They will reappear with the removal of these obstacles to handling through Boston the grain of the future.

Summary. The outlines of the history of differential rates have been traced. It has been seen that they are of from thirty to thirty-five years standing, and are based on:

1. The greater nearness of Baltimore and Philadelphia to the leading points in the Middle West;
2. The desire to distribute the exports of this Middle West and so keep all ports "in business."

In this latter connection it was felt that Baltimore and Philadelphia had an ocean disability which needed a rail advantage to compensate it. Much agitation and three legal attempts to break the differentials and institute equal rates to all North Atlantic ports, have been successful only in bringing about modifications in them; namely, on flour, all-rail grain and steel. There is not much hope that the differential rate structure on American traffic will be changed, except possibly in the matter of more individual modifications.

In the last differential case it was seen that Boston had the unexpected misfortune to have its standard all-rail import rates to the West advanced to the New York level. As ocean rates on imports are the same

to all outports, the effect of this decision is to make the through rates lower via the other outports, Boston being marooned between Baltimore on the South and Portland, St. John and Montreal on the North—all with Baltimore import rates, 3¢ under Boston. Boston's chance of developing its volume of imports for the West is not good.

However, statistics show that the development of New England can be counted on to provide inward cargo for ships; there are now more ships brought to Boston than can be loaded out. For years the bulk of Boston's imports have been for New England. The import rate decision was a blow to the Boston railroads rather than to the port. The latter has an export rather than an import problem. New England does not and cannot supply the bulky freight necessary to fill ships. Regions outside New England must be drawn on for export cargo.

Here, it was shown, the export differentials have a fatal effect. Full cargo business is impossible via Boston. Liners are subsidized to take their out-cargo at differential ports for they can there earn on it an additional sum, over the Boston rates, equal to at least part of the differential. Most of the Boston services belong to great steamship companies with parallel services out of differential ports. In some cases liners, which bring to Boston imports for New England, proceed to differential ports to take their western out-cargo. When outward services are run from Boston, it is at the sacrifice, in the ocean rates, of part or a whole of the inland differential—of the whole differential in the case of flour, for instance.

As an offset to the effect of the freight differentials in decreasing the freight earnings, it was recommended

that the strongest effort be made to better the passenger earnings of Boston steamship lines. As a passenger port, Boston has peculiar advantages. It was suggested that an advertising campaign in the West be employed to induce a larger flow of first- and second-class passengers through this port. The present attractions of the port will continue to increase its popularity for third-class travel.

It was stated that even when the Boston ocean lines shrink their ocean rates and equalize the differential, it is more difficult to fill the Boston boats with western cargo than those at the other out-ports. This is because of the total lack of Boston representation in the West, to educate and solicit the shippers for Boston.

It was suggested that a second offset to the effect of the differential would be through a strengthening of distinct Boston representation in the West. To carry on the work of educating western and other shippers to use this gateway, and when possible, to solicit freight, it was recommended that the Port Directors should organize a small Traffic Department. This Department would perform the larger function of aiding the Port Directors to formulate and pursue a consistent traffic policy to meet the traffic problem which confronts them.

Each of the three Boston roads should at least put an Export Agent in Chicago. The Boston steamship lines have a right to this in view of the western solicitation which the roads serving all other ports give to the steamship lines of the ports they serve.

However, it was seen that these offsets would only mitigate and not solve the problem. The problem is to find traffic on which the steamships can earn as

much out of Boston as out of other ports; that is, traffic on which there is no rail differential against Boston. Three traffic sources were described as being properly in this category; namely, New England, Buffalo and Canada. New England could not help much even if all its exports could be forced through Boston. It does not produce the tonnage. Buffalo, with equal export rates to all ports, is in position to help a great deal, and will do so as it develops its output of American grain products. The especial attention of the railroads and the Port Directors' Traffic Department should be given to Buffalo.

But Canada is the export traffic field of the future. The United States is having a smaller and smaller surplus of grain for export; its export of flour is decreasing. The causes producing this will continue. The outports have been built up on the carrying of United States foodstuffs abroad; they will decline as it disappears. Those of them will prosper which are in shape to carry the substitute for this declining American movement; that is, Canadian wheat and flour. It was shown that a larger and larger volume of Canadian exports of breadstuffs overflows, and is bound to overflow, to the American ports.

In the matter of western Canadian flour moving Lake-and-rail for export, it was seen that Boston is subjected to a discrimination, in that the United States differentials are applied to this traffic, though it neither originates in differential territory nor passes through it. The weight of this discrimination will increase with the growing concentration of export milling west of the Lakes. Boston gets a considerable tonnage of Canadian flour milled east of Georgian Bay. On this flour there are as low rates to Boston

as to any other American port. Boston gets a good share of Canadian flour exported in bond, second to New York, but that is to be expected in view of the wider sweep of New York's services.

It is in the matter of ex-Lake export differentials on Canadian grain that the severest discrimination against Boston lies, and one that threatens the port's future. Buffalo's local export rates to all ports, Boston to Baltimore inclusive, are the same. Ex-Lake grain is a local movement. A special justification is required to uphold a differential on this grain. It was shown that the ex-Lake rates on American grain are, in the eyes of Baltimore and Philadelphia and the Commission, based on the all-rail differentials, which are an expression of the greater nearness of the southern ports to the Middle West. A purpose of the all-rail differentials being to distribute the export traffic of this Middle West to the various ports, the ex-Lake rates are shaped to supplement the all-rail rates.

It was proven that ex-Lake differentials on Canadian grain existed before any all-rail differentials and so are not based on them. It was shown that the all-rail rates to all United States ports from Baltimore north have been the same; namely, 23¢ per 100 pounds from Fort William. The fact that the wheat production of the Canadian West grew faster than the all-rail lines of the three Canadian transcontinentals could be built east of Lake Superior—this fact caused the Canadian wheat export to overflow all-rail via Minneapolis and Duluth, thence to Chicago, where it accidentally ran into the American differential rate structure.

The fact that Canadian grain has been temporarily

forced into a channel with a differential designed to protect Baltimore and Philadelphia in the Middle West, is no reason for a differential on Buffalo ex-Lake grain from Canada that does not touch differential territory at all. There seem to be no serious difficulties to the application of equal ex-Lake export rates on Canadian grain while the ex-Lake differential remains on American grain. It was recommended that Boston and New York enter a formal complaint before the Interstate Commerce Commission charging that the present ex-Lake export differentials on Canadian grain are discriminatory against the two northern ports, as are the Lake-and-rail export rates on flour from Fort William and Port Arthur.

It was shown that, as the result of these differentials on Canadian grain, Baltimore and Philadelphia are about to appropriate Canada as they did the Middle West. The statistics show Baltimore and Philadelphia overhauling Boston in the export of Canadian wheat. Canada was shown to be recognized as Boston territory. Therefore, no just opposition can be made to the claim that equal rates to all ports on ex-Lake wheat from this territory shall prevail, in conformity with other Buffalo export rates.

Success in this case was represented as being substantially a solution of Boston's port problem.

D

THE COASTWISE TRAFFIC SITUATION

CHAPTER XII

A LINE TO THE PACIFIC COAST

Cheapness of water transportation. Roadbed. There are three fundamental advantages of coastwise water transportation over land transportation. It is cheaper because the water route has no expenditures for purchase, construction or maintenance of roadbed. The fixed charges for these items are responsible for a good percentage of the railroad rate that must be charged to bring a fair return on the investment in the road. The water route is over a natural highway; it need only get a pier at either end of its line and its physical equipment, except for floating stock, is provided. The waterway needs maintenance only at its terminals and this is provided by the United States Government.

Operation. Operation is similarly cheaper on the water. For reasons having to do with comparative resistances, a given horse power in a boat propels a larger tonnage through the water than the same horse power in a locomotive can pull even over level rails. Everyone knows that rails are not level and that the heaviest grade limits the tonnage an engine can pull. There are no grades on the water, and no curves. Finally, the water route is quicker. Its freight moves over a roadbed of indefinite capacity and is halted by passing through no intermediate terminals.

Limitation. Need of full cargo. There are two

leading limitations to the utilization of the principle of cheaper coastwise transportation. In the first place, the boat must be filled. Its size and operating cost are fixed and the same whether 5 or 5,000 tons are carried; the boat services of regular lines are all scheduled and must run as advertised. The empty half of the boat cannot be left behind as the tonnage of a freight train can be reduced, or trains taken off, to meet the varying demands of trade. The boat cannot be filled with port-to-port business; most of its cargo must be from and to interior points beyond its water termini. The co-operation of the railroads must be had in collecting and distributing, in supplying the full cargoes. This alone will enable the individual trips of the boat line to pay, and enable the line to make frequent enough sailings so that it can be a real competitor of the all-rail route, in service.

High terminal handling costs. This preponderance of rail-and-water shipments over pure port-to-port shipments is at the basis of the second limitation. Such traffic over the combined rail-and-water route is subject to four handlings: a loading into the car by the shipper, a transhipment into the boat by the water carrier, later a transhipment into the car by the water carrier, finally an unloading from the car by the consignee. If the car had gone all-rail, there would have been only two handlings, undertaken by the shipper and the consignee. The part-water route is subject to two extra handlings at the ports, and expensive ones.[1] They are really double handlings,

[1] The comparison is unfavorable to the land-and-water route only in the case of such shipments as are moved in full carloads and handled by shipper and consignee. In the case of L.C.L., all-rail, especially if handled at many transfer stations en route, the combined all-rail handlings might easily be more costly than those on the land-and-water route.

from the one carrier and to the other. It costs about twice as much to stow and unstow freight to and from a vessel's hold as to handle it between a car and a platform flush with the door of the car.

Advantage increases with length of route. The effect of this second condition is that the principal cost of water routes or land-and-water routes is in the handling of freight at the water termini, and is far larger than the freight handling costs of the all-rail route between the same points.[2] If the water route is long enough, or the water portion of the land-and-water route is long enough, the greater cheapness per mile of water *carriage* can out-weigh the cheaper terminal handling costs of the rail route. That is, for short distances, rail is cheaper than water transportation, especially land-and-water transportation. The advantage of the water over the rail routes, both in rates and service, increases with the length of the water haul.

Importance of coastwise routes to New England. The coastwise services occupy a place of peculiar importance in New England's transportation system. This section is removed from the consuming center of the country in the Middle West, and from the rapidly growing markets in the Southwest and the Pacific Coast. This greater distance means a disadvantage with respect to the time in which New England freight can be delivered to the markets in question; moreover, rail rates from distant New England are bound to be

[2] In proceedings in Interstate Commerce Commission Case No. 2900, the Southwestern Shippers' Traffic Association versus Atchison, Topeka & Santa Fe Railway et al., it appeared that 60% of the cost of carrying freight from New York to Galveston consisted in handling the cargo at the terminals. (See I. C. C. Opinion No. 1975, page 583.)

higher than from near-by producers in the Middle West.

Distance controlling in all-rail rates. For many years distance has largely been ignored in the making of rail tariffs. The principle has been to see that all producers are "kept in business" in all markets. Today the tendency is more and more to regard distance and penalize the distant producer. This tendency is encouraged and enforced by the Interstate Commerce Commission. It was this consideration of distance which resulted in raising Boston's standard import rates to the West up to the level of New York's, where they had never been before.

With rail-and-water rates the case is different. These rates put New England's products in Atlanta and Montgomery and Texas cheaper than the products of Chicago, though Chicago is far nearer to these markets all-rail. In the same way all-water lines to the Pacific Coast will deliver New England products more cheaply than they can be carried from the Middle West by the transcontinentals. The railroads and the Interstate Commerce Commission recognize the inherent cheapness of coastwise transportation. They recognize the inherent right of communities, which can use the coastwise carriers, to have cheap rates to markets which the boats can help them reach. New England is heavily indebted to the coastwise lines for its present markets; its future markets will depend still more upon the maintenance and extension of these coastwise services and the rate structures which they represent.

Present coastwise services. The operating difficulties under which the coastwise lines labor, in their present Atlantic Avenue situation, will soon be

described and a remedy suggested. Boston has excellent coastwise connections with all ports from Halifax to Jacksonville. The frequency of these connections (major lines only) is as follows:

From	To	Line	Sailings per week
Boston	Halifax	Plant	1- 2
Boston	Yarmouth	Boston & Yarmouth	2- 6
Boston	St. John	Eastern S. S. Corp'n	1- 5
Boston	Bangor	Eastern S. S. Corp'n	1- 6
Boston	Portland	Eastern S. S. Corp'n	6
Boston	New York	Eastern S. S. Corp'n	4-10
Boston	Philadelphia	Merchants & Miners	3
Boston	Norfolk	Merchants & Miners	3
Boston	Newport News & Baltimore	Merchants & Miners	3
Boston	Charleston & Jacksonville	Clyde Line	1
Boston	Savannah	Ocean Steamship Co.	2

Needs for the future. The principal needs of Boston, to complete its coastwise services, are a line to the Pacific Coast, as soon as the Panama Canal is opened, and, perhaps later, a line to Galveston, to serve Texas.

The Pacific Coast. Old transcontinental rates. It is expected that the Panama Canal will result in a strengthening of the ability of Eastern Seaboard Territory to compete in the markets of the Pacific Coast. Years ago the all-rail rate from the eastern coast cities to the Pacific seaboard was lower than the rate to the same destination from the Middle West, on the ground that the coast-to-coast shipments were subject to the competition of water carriers via Cape Horn or via the Isthmus of Panama, while shipments from the Middle West were not. The rail rate to the western coast from the Mississippi Valley was higher

than from the eastern coast by approximately the amount of the rate from the Mississippi Valley to the Atlantic seaboard. Similarly, the rail rate from the Atlantic seaboard to San Francisco and other ports was low because subject to the water competition mentioned. The rail rate from the eastern coast to an inland western point like Reno was higher than the rail rate to San Francisco by the amount of the rate from San Francisco to Reno. This latter condition still exists; that is, transcontinental rates in both directions are lower for San Francisco than Reno and other interior coast cities.

Middle West equalized with seaboard. But in the eastern half of the country conditions have changed. The low transcontinental rates between the Atlantic and Pacific seaboards were extended to apply between the Pacific seaboard and all points on or east of the Missouri River. That is, all territory east of the Missouri was "blanketed" for this transcontinental traffic, in both directions. The so-called "transcontinental" roads end at the Missouri or Mississippi river, or at Chicago. They had not liked a rate policy which had tended to perpetuate in the East a monopoly of manufacturing for the coast. When that traffic originated in the East the eastern trunk lines took 25% for hauling it to Chicago, 33% for hauling it to Omaha. The "transcontinentals" were much better pleased to see the traffic originate at Chicago, St. Louis, St. Paul or Omaha, which gave these roads 100% of the rate. If a manufacturing population concentrated in the East consumed Pacific Coast fruits, the eastern lines again had to be paid 25% or 33% of the rate for delivering the cars carrying this traffic. The transcontinentals could far better afford to deliver

the cars for the same rate to a manufacturing population in Omaha or Chicago, retaining the whole 100% of the rate.

Middle West gets better rates than seaboard. The first step, therefore, towards building up the Middle West was to "blanket" it with the East in the matter of transcontinental rates, in both directions. The second step went farther than this. *Class* rates in both directions were graded by zones that run eastward from the Missouri River; the more eastward the zone, the higher the rate.[1] Most *commodity* tariffs eastbound were similarly graded. Westbound *class* tariffs were graded by zones of origin; the westbound *commodity* tariffs are sometimes graded, sometimes blanketed for the whole territory east of the Missouri River.

Advantage of Canal to Atlantic seaboard. The rate advantages thus given the Middle West, in transcontinental traffic, are accompanied by advantages it enjoys in point of service. Traffic from the eastern seaboard, particularly New England, must move through intermediate gateways before getting into the through trains of the transcontinental railroads. This means some delay compared with shipments from a middle western point, probably located at a terminal of a transcontinental.[2] The Panama Canal promises

[1] These zones are lettered westward. For example, Group A includes New England and New York; Group D is centered about Chicago.

[2] The Southern Pacific should be mentioned as an exception to the main group of transcontinentals. Its eastern terminus is New York; its line is all-rail from the coast to Galveston, thence by water to New York (three Southern Pacific boats per week). The Southern Pacific, floating its freight past all congestion, maintains a 13-15 day service from coast to coast. However, it has no rates lower than the all-rail lines across the continent. (But see pp. 224-225.)

to give back to the Atlantic seaboard its ancient advantage in rates to the Pacific Coast, and to equalize it in point of service. The construction of the Panama Canal may be looked upon as a subsidy to the commercial interests of the Atlantic seaboard, just as the heavy government aid to the transcontinental roads has turned out to be a subsidy to the commercial interests of the Middle West.

Present water routes to Pacific Coast. At the present time, there are three so-called all-water routes between the coasts. One is the American-Hawaiian Steamship Company. This company was founded on a contract to carry Hawaiian sugar to the eastern coast, around Cape Horn. It developed into a regular steamship line carrying westbound cargo as well; indeed, the westbound now predominates. In 1906 it shifted from the Cape Horn to the Tehuantepec route, transhipping its freight at either end of the railway across the Isthmus of Tehuantepec. A second water carrier now operating between the coasts is W. R. Grace & Company, whose steamers now ply between New York and the Pacific Coast via Cape Horn. They will run through the Canal when it is completed.[1]

The third water line consists of the Panama Railroad Steamship Company, now Government-owned, which carries freight from New York to Colon, whence it is taken by the railroad across the Isthmus to Balboa and there delivered to two Pacific connections, the Pacific Mail Steamship Company (owned by the Southern Pacific Railroad) and the Luckenbach Line, which deliver the freight on the Pacific Coast. The Panama route has been of small capacity, as the ship

[1] The Panama Canal was opened about a month after this was written.

tonnage from New York to Colon has been largely employed in carrying government supplies. The Panama Railroad Steamship Company will go out of existence when the Canal is opened, at least so far as coast-to-coast business is concerned.

Port-to-port rates will prevail. When the Canal is opened, the American-Hawaiian will be the main factor in the situation. Its present large fleet will have its carrying capacity nearly doubled when it is no longer necessary to maintain separate fleets on the Atlantic and the Pacific. Moreover, its fleet is being largely increased by new construction. The American-Hawaiian has no through rates, to or from interior points; it has only port-to-port rates, which it does not file with the Interstate Commerce Commission, and which it is free to vary as it chooses, to attract traffic. The other lines will be compelled to meet this situation. That is, rates west by water will be like rates in the foreign trade. There will be pure port-to-port ocean rates and if any shipper is not at the seaport, he will have to pay the local rate to the port, plus the water rate.

Therefore, Boston and eastern New England need a Pacific line at this port rather than at New York. If there were to be a line at New York and none at Boston, the shippers at this end of New England would be penalized, in competition with New York, by the amount by which the rail rates to New York exceed the rates to Boston, and by the amount of time by which service to New York is slower than to Boston.

New water rates to Boston. The advantage to Boston itself from the possession of a line to the Pacific Coast is illustrated by the following rates. It is to be assumed that the all-water rates between

Boston and the Pacific Coast will be the same as the present rates between New York and the coast via the so-called all-water routes:

COMPARISON OF ALL-RAIL AND ALL-WATER TRANSCONTINENTAL RATES. CARLOADS. CENTS PER 100 LBS.

Eastbound	All-Rail Rates Applying		All-Water Rates Applying
	To New England Points	To Chicago and other Group D points (Also the New York piers of Southern Pacific and Mallory Lines[1])	Via American-Hawaiian To New York Piers
Asphalt	60	50	30
Wool	100	100	45
Canned Salmon	70	70	45
Other canned goods	85	85	45
Shingles (Seattle)	85	65	55

Westbound	All-Rail Rates Applying		All-Water Rates Applying
	From New England Points	From Chicago and other Group D points (Also the New York piers of Morgan and Mallory Lines)	From New York Piers
Boots and shoes	2.75	2.75	1.50
Cotton duck, denims, drills, sheetings, and bagging	1.00	1.00	70
Wrapping paper	90	90	75
Canned goods	90	90	60
Shoe blacking	1.10	1.10	75

[1] The Southern Pacific and Mallory steamship lines run from Galveston to New York. Both are parties to transcontinental rates: the Southern Pacific steamers in connection with their own rail lines to the coast, the Mallory lines in connection with the Santa Fe. It is noted that these routes are allowed to apply to their New York piers—*i.e.*, to New York City itself—the lower graded eastbound commodity rates that belong to Chicago.

It is fair to assume that a new line to Boston will afford it the water rates quoted in the last column.

Boston-Pacific service planned. Fortunately, the enterprise of Boston men provided for a Boston-Pacific Steamship Company, which instituted a fortnightly service between Boston and the coast as soon as the Canal was opened. Since the Boston-Pacific line was formed, the American-Hawaiian began monthly sailings from the Pacific Coast to Boston and then announced that it would load these monthly steamers westbound from Boston as soon as the Canal was opened.[1]

How railroads may be asked to help. It may turn out that a difficulty of the New England service will be in the matter of heavy cargo westbound, which in New York will be supplied by steel from Pennsylvania and Buffalo. A simple measure can be taken to help remove this difficulty, if it arises. Export rates from Buffalo are the same to Boston and New York; domestic rates are higher to Boston than to New York. At present, steel for transhipment to a Boston coastwise carrier would move to Boston on the higher domestic rate, severely handicapping the Boston line. But the export rail rate to Boston also applies to all freight destined by vessel to points on the Maine coast east of Portland, so there is a precedent for applying the export rate to coastwise shipments. There is good reason for requesting the application of export rail rates—and the consequent equalization with New York—in the case of traffic destined for the Pacific Coast, which is more distant than most foreign destinations. This measure, if applied to traffic from

[1] For the outcome of the first year of Boston services to the coast, see Note at end of this chapter.

New York State and Buffalo would go far towards remedying a deficit in heavy westbound cargo.

Attitude of transcontinentals towards Canal. When the Canal is opened, it is not to be expected that the transcontinental roads will try to meet the water rates between the Atlantic seaboard and the Pacific Coast. It is not likely that the coastwise carriers to the Pacific Coast will draw to the Atlantic ports much traffic of points west of Buffalo and Pittsburgh. Only 20% of westbound transcontinental traffic originates east of Buffalo and Pittsburgh; less than 20% of the eastbound traffic has destination east of Buffalo and Pittsburgh.[1] The all-rail lines are committed to the policy of at least equalizing middle-western with eastern rates to the coast. It is not likely that, for the sake of retaining a small part of the 20% which seaboard traffic now represents of their total traffic, they would reduce the revenue on the 80% which they will retain in any case. The transcontinental routes are more likely to let the seaboard territory ship by water and, when necessary, protect their middle-western manufacturers by commodity rates to the coast applying from the Middle West alone.

Southern Pacific may institute cut rates applying to New York piers. Indications are that only the Southern Pacific, which is the only real American transcontinental, is likely to make concessions towards meeting the all-water rates of Seaboard Territory. In recent years a beginning of this policy has been made; the concessions applying, however, only to the Southern Pacific's New York pier. That is, the Southern Pacific does not absorb into these low rates

[1] These percentages are from Professor Emory Johnson's official report to the Government on "Panama Canal Traffic and Tolls."

the inland rates into interior Seaboard Territory. But eastbound commodity rates from the coast to Group D, Chicago and its vicinity, are also applied to the New York piers of the Mallory and Southern Pacific steamship lines. New England and New York State are Group A points and carry higher than Group D rates. Examples are:

TRANSCONTINENTAL COMMODITY RATES FROM THE PACIFIC COAST. CARLOADS. IN CENTS PER 100 LBS.

	To Group D (Including N. Y. piers of Galveston Lines.)	To Group A (New York State and New England.)
Wine	55	75
Asphalt	50	60

There are some commodity rates from the coast that do not read to anything east of Group D points: Chicago and vicinity and the New York piers of Gulf steamship lines. An example is "stone, marble and onyx" which has a rate of 50¢ to Group D. Points in New England must pay 50¢ plus the local or proportional rail rate from New York to New England destination.

Westbound, the same situation prevails. There are some commodity rates applying to nothing east of Group D points except the New York piers. For example, the rate west on caustic soda, soda ash, sulphite of soda, etc., is 55¢ per 100 pounds, applying from Group D points and nothing east thereof, except New York piers. To ship west the New Englander must pay this rate plus the proportional from the New England point to the New York pier.

New Southern Pacific rates will not blanket New England. That is, whatever is done by transconti-

nentals to meet the all-water competition from coast to coast is likely to consist not of blanket rates applying to all Atlantic Seaboard Territory, but of rates applying only between the same points as the water rates; namely, between New York and the Pacific Coast. To avail itself of these rates, as of all-water rates of New York lines, New England will have to pay its way to New York.

[NOTE. (September, 1915.) In the first year of water connection between the Atlantic and Pacific coasts, the predictions of this chapter have been verified, with regard to rates and conditions of competition.

After a period, the Boston-Pacific Line gave up its service to the coast, taking advantage of the high ocean rates occasioned by the European War to charter its vessels for a long term. The American-Hawaiian in September, 1915, was running three boats a month to and from Boston. The boats to Boston touched first at Charleston and Philadelphia. From Boston the boats sailed via New York. Boston was being accorded the all-water rates of New York both on eastbound and westbound cargo.

The Southern Pacific Railroad Company and other transcontinental routes found their traffic very heavily affected when the Canal was open and the American-Hawaiian, in addition to its low rates, could offer rapid service from coast to coast. In general the all-rail transcontinental routes did not care to go far in meeting the water competition. Water rates were so low that, if approached by rail rates, there would be little for each of the many roads composing the all-rail routes. There were too many participants to split a very low rate.

However, the Southern Pacific had a transcontinental route all its own: rail from coast to Galveston, water to New York. The Southern Pacific (and the Santa Fe, in connection with the Mallory Line) have instituted rates of 40¢ per 100 pounds

on 80,000 pound carloads of canned goods (fruit), canned salmon, beans and asphalt, the rates applying only to New York piers and only from six specified California coast points available for all-water shipments.

Moreover, the direct American-Hawaiian boats from the coast to Boston forced the Southern Pacific to put on one boat a month from Galveston to Boston if it proposed to hold any of the large Boston trade in California goods. This monthly Southern Pacific steamer gives its Boston pier the same eastbound transcontinental rates as the New York piers of the Company. But the Southern Pacific does not, like the American-Hawaiian, load any cargo out of Boston. It goes to New York to load.

The American-Hawaiian has rates 5¢ per 100 pounds lower than even these 40¢ rates of the Southern Pacific. But the latter meets this by absorbing the 2¢ per 100 pounds wharfage levied on local Boston consignees. Moreover, these consignees have the privilege of "inspection before acceptance" if their goods come by the Southern Pacific, but not if they come by the other route.

The Southern Pacific does not bring Texas cargo to Boston. Its monthly Boston steamer is solely to meet the all-water competition on California traffic.]

CHAPTER XIII

A LINE TO GALVESTON

Boston-Galveston line. With regard to a new line from Boston to Galveston, the situation is not so simple nor the prospects so bright as in the case of a line to the Pacific Coast. A line to Galveston means a line to Texas; the present coastwise lines to Galveston serve largely Texas. This is the effect of the all-rail rate adjustment to the Southwest. For instance, the Mallory Line carried southbound in 1910 the following tonnage:

SOUTHBOUND TONNAGE OF MALLORY LINE TO GALVESTON, 1910[1]

Total	190,250
Of that, to Texas Common Points	167,813
To Oklahoma	3,669
To Kansas	1,139

Former rates to Texas. In the early days there was severe competition between the all-rail and coastwise routes leading from the eastern part of the United States to Texas. In some cases the coastwise rates got so low that traffic for Texas from as far west as the Mississippi River was drawn to the eastern ports, carried by water to Galveston and there distributed inland. Finally, a division of territory was made

[1] From brief of complainant in Case I. C. C., 2900.

between the all-rail and rail-and-water routes. The territory east of Buffalo and Pittsburgh, thereafter known as Atlantic Seaboard Territory, was assigned to the coastwise lines, all else to the all-rail lines. The coastwise carriers were allowed to publish, from all points in this Seaboard Territory, through rates to Texas points enough lower than the all-rail rates to make certain that this traffic would move coastwise. For instance, the first-class rate via New York, coastwise, has long been $1.72 per 100 pounds to Texas Common Points from New York, Boston, or any New England point; while the corresponding all-rail rate was $2.32. Texas Common Points are nearly all points in Texas out beyond a certain zone from Galveston.[1]

New England blanketed with New York. It is observed that Boston and New England were blanketed with New York; the inland points had the same rate as the port of New York itself—they were practically moved to the seaboard, in point of rates. The excellent service between most New England points and New York made New England and Boston manufacturers almost as accessible to the steamers as were the manufacturers of New York itself. If this condition still existed, there would not be much excuse for starting a new line from Boston to Galveston, or much hope that it would succeed if started. The interior New England shipper and even the Boston shipper could not be offered, via Boston, a better rate than the rate from New York itself, nor so frequent service as New York.

[1] Houston and Beaumont are the leading Texas cities which are not common points.

Lifting the blanket. Port-to-port competition. This beneficent blanket was raised from Boston and New England points by the effect of a rate war between the coastwise lines, and abolished by a system of rates for consolidated carloads, inaugurated by the Texas Railroad Commission. The through rate of $1.72 to Texas was based on the first-class water rate of 85¢ from New York to Galveston and a rate of 87¢ from Galveston to Texas Common Points (85¢ + 87¢ = $1.72). The original steamship lines from New York to Galveston are the Mallory and Morgan Lines, the latter now belonging to the Southern Pacific and known as its Atlantic Steamship Line. In the nineties the Lone Star Line was established as a competitor and, not very long after that line had succumbed, the Texas City Steamship Company was established on a contract to carry the freight of the American Steel & Wire Company. During a long period of competition the first-class port-to-port rate from New York to Galveston dropped from 85¢ to, in some cases, 25¢ and 15¢ per 100 pounds. This rate advantage was not extended to affect through rates to the Texas interior; the Mallory and Morgan Lines, which alone had through rates in connection with Texas rail lines, did not want to lose any more money than necessary. The through rate from New York or New England points to Texas Common Points remained $1.72.

Combination cheaper than through rates. But in view of the low port-to-port rates from New York to Galveston, it was a saving for New York shippers and those adjacent to New York to pay the local rate to New York, whence the freight moved to Galveston at

the low 25¢ water rate prevailing, consigned to a forwarder in Galveston, who rebilled it to destination for 87¢, if first class. Each forwarder charged 1¢ per 100 pounds for his rebilling; obviously, there was a considerable territory outside of and including New York, which found it cheaper to ship on combination rather than through rates. The New York shipper reached Texas Common Points for a first-class combination rate of 25 + 1 + 87 = $1.13; as compared with a through rate of $1.72 from Boston or the New England interior, or a combination rate from the New England point of $1.13 plus the cost of putting freight on the New York pier.

Elimination of water competition. This disadvantage to New England has been partially removed. The Mallory interests obtained control of the Texas City Line and port-to-port rates from New York to Galveston have been gradually raised until they are now 75¢ first class. They will not go higher. The combination rate from New York to Texas Common Points is 75 + 87 = $1.62. The through rate is $1.72 from New York and from Atlantic Seaboard Territory as well. The advantage of 9¢[1] first class, less on the lower classes, is a smaller incentive than might be thought, to induce the New York shipper to consign to a forwarder at Galveston, in view of the possibility of delay, the divided responsibility, the difficulty in financing shipments, due to not having the final bill of lading in New York. All this is avoided by shipping on the through rate.

Consolidating carloads in Texas. However, the

[1] 1¢ for the Galveston forwarder.

Texas Railroad Commission has created a more serious situation. Texas has been particularly concerned in building up its own jobbers and has regulated intrastate rail rates, on consolidated car lots, to attain that end. Texas has many small jobbers who cannot buy in car lots. The bulk of the shipments from the East to Texas consists of L.C.L. of high-class merchandise.[1] The problem was to arrange to have these jobbers get less-than-carload lots at a carload rate, in order to be able to distribute in Texas in competition with the St. Louis jobber. In Official Classification Territory, as is well known, there is given the privilege of shipping miscellaneous L.C.L. in carloads, paying on the whole the *carload* rate of the highest class freight in the car. But freight from the East to Texas moves on Western Classification, which allows of no such consolidation. The Texas Commission, however, has forced an arrangement whereby miscellaneous freight can be consolidated into a car at Galveston and forwarded to the interior at the carload rate of Class A, a comparatively low rate. For instance, the carload Class A rate from Galveston to Texas Common Points is 49¢; the first-class L.C.L. rate is 87¢. Rated at Class A or lower, in consolidated car lots, are such diverse commodities as cotton piece goods, shoes, machinery, belting, paper and felt.

How New York saves by reconsignment. So a Dallas merchant or a number of Dallas merchants have their merchandise from the East sent on local bills of lading from New York to Galveston, and there consolidated by a forwarder into a carload, sent on to the

[1] Especially true of New England freight.

forwarder's transfer company at Dallas and distributed to the merchants participating. The saving on an L.C.L. shipment, first class,[1] from New York City, works out as follows:

	Per 100 lbs.
First-class L.C.L. from New York to Texas Common Points, through rate	$1.72
New York-Galveston, first class, L.C.L.	75¢
Services of Galveston forwarder	03¢
Galveston-Dallas, Class A, C.L.	49¢
	— 1.27
Saving by reconsignment[2]	$ .45

How New England saves. All New England points which can put freight on a Mallory or Morgan Line pier for less than 45¢ per 100 pounds[3] will similarly move its shipments to Texas cheaper by reconsigning at Galveston.[4] New York is once more the most desirable location for those who ship high-class L.C.L. to Texas; shippers outside of New York are penalized by their local rates to New York, up to a maximum of

[1] Boots and shoes, L.C.L., are first class.

[2] Only a few Texas points are large enough to take regular consolidated carloads of L.C.L. from Galveston and hence avail themselves of the 49¢ C.L. Class A rate. Reconsigning of the type described is confined largely to Dallas, Fort Worth, San Antonio and El Paso.

[3] The first-class rail rate from Boston to New York, applying on freight for carriage south by a coastwise line, is 18¢ per 100 pounds, including delivery on the steamship pier. For 45¢, first class, L.C.L. freight could be put on a New York pier from all Boston & Albany and New Haven points and all Boston & Maine points south of and including Portsmouth, N. H., Concord, N. H., and Wilder, Vt.

[4] As a matter of fact, even shippers beyond the 45¢ zone are asked by Texas buyers frequently to send their shipments on the combination rate, in order that these shipments may help to furnish sufficient freight for a car lot at Galveston.

45¢ per 100 pounds. The saving is less on L.C.L. of the lower classes, where there is less spread between the through rates and combination rates than can be obtained by reconsignment at Galveston.

Consolidating L.C.L. on New York pier. A further incentive to reconsignment at Galveston is given by the special carload port-to-port tariff of 55¢ per 100 pounds, allowed by the Mallory and Morgan Lines to a carload (20,000 pounds) of miscellaneous freight consolidated at the New York pier, destined to a single consignee. It will be recalled that the first-class L.C.L. port rate is 75¢. In this 20,000 pounds may be included dry goods, boots and shoes and, in general, the run of merchandise that goes to make up the stock of the general store in Texas. In New York are resident many Texas buyers who avail themselves of this 55¢ tariff. So the advantage of consolidating high-class L.C.L., and shipping it on combination rather than through rates from the Atlantic Seaboard, begins in many cases at New York, rather than at Galveston.[1]

So far as L.C.L. of the higher classes is concerned, the blanket has been raised which once covered New England as well as New York.

[1] The effect of these consolidating privileges, both on the water and the land, upon the through movement of manufactures from the East into Texas, is indicated by the testimony at Washington of Mr. Raymond, Vice-President of the Mallory Line. Referring to his southbound traffic into Texas he stated:

"A few years ago our through business was 70% and the local 30%. Today, what goes to the port billed through does not exceed 30%; and that billed locally is 70%." (P. 1204, 1913 Hearings of House Committee on Merchant Marine and Fisheries on H. R. 587.)

Raising the blanket on carload rates. Most *carload* traffic moves on through commodity rates, lower than any combination that can be obtained via Galveston. The discrimination against New England in this carload traffic has a natural origin. Like the all-rail lines, the water lines want to build up local industries; in the case of coastwise carriers, that means industries at their termini. They get the entire rate to Galveston on the traffic of such an industry and need divide it with no New England rail carrier. Important commodity rates to Texas Common Points have been instituted applying from New York, but not from Atlantic Seaboard Territory, including New England. Instances are:

COMMODITY RATES TO TEXAS COMMON POINTS FROM NEW YORK AND ATLANTIC SEABOARD TERRITORY, RESPECTIVELY. CARLOADS. RATES IN CENTS PER 100 LBS.

	Rate from New York	Rate from A. S. Territory
Binder twine	64	74
Building and roofing paper	57	75
Rubber hose	97	106
Rubber belting	104	114
Boots and shoes	134	149
Books	114	129
Carpets and carpetings	134	149

New York's advantage to points near Galveston. What has been said so far has applied only to business from the East to Texas Common Points. However, there is a small territory in Texas reached from Galveston by rates lower than the rates to the Common Points. Houston and Beaumont are the leading cities

not Common Points. To this territory through rates from New York are 15¢, first class, lower than from Atlantic Seaboard Territory.[1]

Northbound rates from Texas to Atlantic seaboard. Northbound the movement is of bulk commodities: cotton, wool, onions, rice, lumber, hides, hair, horns, copper matte. This movement is largely on combination rates: a local into Galveston, the ruling water rate to New York; then the local inland, if the traffic is destined inland. In the case of this northbound traffic, New England points, including Boston, are handicapped by the amount of their rail rates from New York. The rate on cotton from New York to Lowell is 15¢ per 100 pounds + 3¢ lighterage in New York, 18¢ in all. With a Boston line, Lowell could get its Texas cotton from Boston for 5¢ per 100 pounds (the Boston-Lowell rate) + 2.5¢ lighterage, 7.5¢ in all.

Trend of much New England territory towards New York. A Boston line to Galveston, to be successful as a weekly service, would need to have assured for it nearly all freight moving to Texas from New England east of the Connecticut River. Nothing less than a weekly service would be competitive with the New York lines. The concentration of this tonnage on a Boston line would be a matter of great difficulty. It is usual to exaggerate the extent to which New England is tributary to Boston, in the matter of coastwise business. Only Boston & Maine territory is naturally tributary to this port. The Boston & Maine has its

[1] Except from eastern points whose locals into New York are less than 15¢ scale; in which case the through rates are a straight combination on New York.

longest haul and largest revenue if the traffic for coastwise shipment is hauled to its terminal, Boston. The New Haven prefers to take down to New York for transhipment its traffic for coastwise lines; the same is true of the Boston & Albany, now that it is part of the New York Central Lines and has a route of its own all the way to New York. The Central Vermont's terminal is New York, reached by the road's boat line from New London. The Maine Steamship Company from Portland and the Bull Line from Stockton Springs further tend to draw New England traffic to New York.

Rail proportionals to New York on coastwise traffic. It has been seen that coastwise lines publish blanket through rates to the Southwest, absorbing the rail rates to and from the ports. Local rates from eastern New England to New York are fairly high; much higher than the corresponding locals to Boston. If the New York coastwise carriers had to absorb these high locals, they might refuse to include eastern New England in the blanket rates published. To prevent this and to aid the shipper in cases where he must ship on a combination rate, the New Haven and Boston & Albany publish proportional rates lower than the New York locals, applicable only to shipments going to New York for transhipment to coastwise lines. The concession made in these proportional rates, below the corresponding New York locals, increases as the distance from New York is greater, and hence the tendency towards Boston more strong. For instance, these proportional and local class rates from Boston itself to New York are as follows:

COMPARISON OF COASTWISE PROPORTIONAL AND LOCAL CLASS RATES, BOSTON-NEW YORK

	Classes					
	I	II	III	IV	V	VI
Local Rates:						
All-Rail	35	30	21	19	17	15
Rail and Sound						
All-water	30	25	22	17	14	12
Proportional Rates:						
All routes	18	16	15	13	12	11

Effect of this on Boston-Galveston line. These proportional rates include delivery to the boat at New York. The concessions made in the *commodity* proportional tariffs, which move the bulk of shipments, are also such as to help neutralize the difference in distance between eastern New England and Boston and New York respectively. Below is a comparison of the cost of putting certain large items of coastwise freight aboard steamers at Boston and at New York. The New York rates given are the proportionals, which include delivery to ships. The Boston rates given are locals plus the cost of transfer (C.L. by Union Freight, 1¢; L.C.L. by team, 4¢).

INLAND RATES ON CERTAIN ITEMS OF COASTWISE FREIGHT FROM EASTERN NEW ENGLAND TO BOSTON AND NEW YORK

Item	From	To New York	To Boston
Cordage, C.L.	New Bedford	11¢	9¢
Cordage, C.L.	Plymouth	11¢	6¢
Bacon and smoked meats, C.L.	Worcester	10¢	8¢
Wire, C.L.	Worcester	11¢	6¢
Wire, L.C.L.	Worcester	14¢	10¢

New York's territory extended by proportionals. A serious difficulty confronting the founder of a new

line from Boston to Galveston is that he would find that his New York rival could get New England freight on board ship cheaper than the Boston line, from all points west of the Connecticut River, and even from the Sound ports, Providence, Fall River, New Bedford.[1] The Boston enterprise would find the Bull Line, from Stockton Springs to New York, carrying Aroostook potatoes to New York so cheaply that it can afford to absorb the Bangor & Aroostook locals into Stockton Springs, and yet deliver the potatoes to the coastwise lines at New York at as low a rate as any which the Maine Central and Boston & Maine can make to Boston. The Bull steamers have a contract to carry to New York the very large local shipments of the Great Northern Paper Company from Millinocket; the Great Northern's coastwise shipments follow along with the local movement. The interest of the Grand Trunk and the Rutland tend to carry to

[1] For instance, the class rates to Boston and New York, from the Sound ports, are:

CLASS RATES ON TRAFFIC FOR FURTHER CARRIAGE BY COASTWISE VESSELS. CENTS PER 100 LBS.

	I	II	III	IV	V	VI
To New York:						
From New London, Providence, Fall River or New Bedford (including 4¢ for transfer to steamship pier) . .	18	16	15	13	12	11
To Boston (not including 4¢ for transfer to steamship pier)						
From New London . . .	24	21	18	17	13	11
From Providence . . .	17	14	11	8	7	6
From Fall River . . .	19	16	15	11	10	8
From New Bedford . .	20	16	15	12	10	9

New York coastwise shipments of Vermont marble; the Maine Steamship Company takes to New York canned corn from Portland.

The effect of the coastwise proportionals would be to very strongly diminish any apparent advantage of the Boston line in the matter of traffic from near-by places like Plymouth and Worcester.[1]

Distribution of northbound cargo from New York and Boston. Similarly, in the distribution of northbound traffic in New England, the new line would find New York coming up into this territory with practically equal rates. For instance, the rates on cotton to Fall River and New Bedford, which probably take one-half the Texas cotton distributed in New England, are:

RATES ON COASTWISE COTTON, FROM SHIP'S SIDE TO NEW BEDFORD AND FALL RIVER, FROM NEW YORK AND BOSTON, RESPECTIVELY. CENTS PER 100 LBS.

	To	From New York	From Boston
Cotton, C.L.	Fall River	14¢	13.5¢
Cotton, C.L.	New Bedford	14¢	14.5¢

The Mallory experiment with a Boston-Galveston line. In the winter of 1909-1910 the Mallory Line, at the urgent request of Boston, ran a weekly service from here to Galveston. After four months the service was withdrawn. The Mallory people said that it lost heavily and that on one southbound voyage it had to take on ballast at Jacksonville in order to be seaworthy for the voyage across the Gulf of Mexico.

[1] The Boston-Pacific will also find these proportionals favoring the movement of coastwise freight through New York rather than Boston, for the proportional rates to New York (but only via Boston & Albany) also apply to American-Hawaiian shipments.

It is true that the Boston-Galveston Line was merely an extension to Galveston of the regular Boston Clyde Line service to Charleston and Jacksonville[1] and that the stops at these points prevented the service from being really competitive with that of New York. Some in Boston claimed that the Mallory Line was only interested in making a failure of the experiment; and that the New Haven, which then dominated the Boston & Maine, had taken care to make the failure a thorough one. The Mallory Manager stated at Washington:[2]

Mallory Manager's opinion.

The ordinary person would think that if a regular steamship service could be profitably operated between Boston and a Gulf port, that service would have been established long ago. The Mallory Line attempted such a service. It could not make this a profitable venture even by calling at other ports. No port on the Atlantic Coast could maintain, even for a brief period, a respectable steamship line on business originating at that port. Little tonnage would move through Boston to Gulf ports at the same rate as via New York for the reason that the latter offers the line of least resistance as well as offering, due to its volume of tonnage, satisfactory service and facilities. A steamship, as is well known, must have a certain proportion of heavy cargo, and she must have a reasonably large cargo, especially for a trip of 2,473 miles—the distance from Boston to Galveston—to earn anything.

Undoubtedly, if the New England shippers would place

[1] The Mallory and Clyde Lines have a common owner, the Atlantic, Gulf and West Indies Steamship Company. The extended Boston Clyde Line service was called a Mallory Line because Galveston is Mallory Line territory.

[2] Mr. Raymond, pp. 1191 *seq.* of 1912-1913 Hearings before House Committee on Merchant Marine and Fisheries on the So-Called Shipping Trust. (H. R. 587.)

sentiment in advance of business,[1] they could supply sufficient tonnage to maintain a weekly service from Boston to Galveston, but in my years of practical experience in steamship business I have yet to find sentiment substituted for good business ideas for any length of time. With five regular sailings from New York for Galveston, and more or less frequent service to Velasco, Texas, it can be easily understood that the average shipper would not undertake to accumulate his shipments for a weekly sailing from Boston, and incidentally subject shipments to a week's delay, as compared with what might be stated as a daily service from New York. This would be especially true with shippers of package freight.

Difficulty of getting New England cargo moving on through rates. The difficulties confronting a Boston-Galveston service are clearly stated in this testimony. The testimony refers primarily to such traffic of the interior as moves, and would move, on through rates. The new line could not give to New England interior points, or Boston itself, any lower through rates to Texas Common Points than they now enjoy via New York; namely, $1.72 first class. The Texas rail lines would not concur in any different rate structure than the one now established. Boston and New York would be merely different gateways for competing rail-and-water routes with identical rates from all points. Over the New York route the shipper would have five boats per week, over the Boston route, one. The shippers of high-class freight would tend to patronize the New York service. Last summer the Ocean Steam-

[1] Yet probably the majority of southbound tonnage into Texas consists of merchandise bought f. o. b. New England factory. The consignees direct the routing and New Englanders can have only an indirect influence thereon.

ship Company of Savannah was running three boats per week out of New York, two out of Boston. Keith, of Brockton, was shipping his Ocean Steamship Company shoes via Boston; twice a week was sufficient frequency of service. The Clyde Line to Charleston and Jacksonville was running one boat per week out of Boston, four out of New York. Keith was shipping his Clyde Line shoes via New York. A service out of Boston to Galveston, more frequent than once a week, could not be run for some time. Heavy cargo is not present in New England; it is supplied to the New York boats by steel from Pennsylvania and cement from New York State and Pennsylvania. The leading items northbound on a Boston line would be seasonal; namely, cotton, wool, onions and rice. Copper matte, the all-year deadweight cargo of the New York service, could not be brought to Boston. The chances are that even a weekly Boston service would be run at a loss, in the beginning.

What a Boston-Galveston line would accomplish, if successful. What a Boston-Galveston line would accomplish is this: it would put Boston itself, as a shipping point, on a parity with New York, meeting any New York local commodity rates into Texas. It would enable Boston and near-Boston shippers of high class L.C.L., consolidated into carloads at Galveston, to save something by shipping on combination rates via Boston rather than via New York. It would equalize Boston with New York in the matter of through rates to points in Texas nearer Galveston than Texas Common Points. It would reduce the rates, for consignees in Boston and eastern New England, on cotton and other commodities from Texas moving on combination rates. Finally, such a line

would bring to Boston some Gulf cotton for export. The New York boats bring up an average of about 500 to 1,000 bales per trip for export, during the cotton shipping season.

The matter of export cotton is not an important one. Galveston is every year more and more able to take care of its own export cotton, especially that destined to Liverpool, the main cotton port with which Boston has connection. The saving on high-class L.C.L. southbound would be balanced by the less frequent service which would have to be accepted, via Boston, in order to effect that saving. A saving of a few cents per 100 pounds in freight does not count, compared with the necessity of meeting the rail service of St. Louis manufacturers into Texas. The New Haven and Boston & Albany roads, whose influence with the coastwise lines is considerable, should be counted on to prevent any fatal discrimination in commodity rates against the New England shipper, in favor of the shipper at New York. Higher than New York rates on traffic northbound from Texas is something to which New England consignees are accustomed and adjusted.

Should its establishment become necessary, the New Haven road should be left free to establish it. There may be doubt whether, at the present time, a separate service, Boston-Galveston, is needed. But the distinct tendency has been, as has been seen, to remove the blanket that once covered New York and New England in the matter of southbound shipments, with resulting discrimination to New England. The time may very well come when eastern Massachusetts will need, for its protection, a line from Boston to Texas. There is only one practicable founder for such a line; namely, the New Haven road. The New Haven cannot be

interested in short-hauling its coastwise freight to Boston and there handing it over to an independent coastwise carrier. It is the New Haven's duty to its stockholders to carry freight as far as it can. It can say to the inland shipper: What difference does it make whether the shipment moves via Boston or New York, when your through rate is the same in both cases? A Boston-Galveston line cannot succeed unless it can draw on New Haven territory. The New Haven will be interested to haul its coastwise freight to Boston only when it can haul it on by water to Galveston. The Boston & Maine will naturally be interested in facilitating the movement of Texas freight through Boston. Either the Boston & Maine or the New Haven reaches every important point on the Boston & Albany. The Boston & Maine and New Haven can cover New England. No one else has the stake of the New England railroads in the welfare of this territory. No one else could afford, in the general interest of this territory, to establish a service likely to be unprofitable for some time, and to conduct a contest on behalf of New England with the strong interests now intrenched in the Texas trade.[1]

Need of protecting New England rate structure. The New England rate structure, via coastwise lines, is a peculiarly favorable one, involving the absorption of a whole or part of rail rates to the ports. The New England roads should be free to establish water routes protecting this rate structure, whenever anything threatens to harm it. The very possibility that New England rail lines will, if necessary, establish water lines of their own, will perhaps suffice to enforce a

[1] The monthly Southern Pacific steamer from Galveston to Boston, as has been seen, carries only California and not Texas traffic.

continuation of the beneficent practices of the water lines. This possibility of action by the New England roads should not be impaired.

Railroad water lines elsewhere. A water line is the natural extension of a rail line. The latter has the inland traffic force and traffic relations that enable it to concentrate at the port the cargo necessary to make possible regular steamship sailings. Probably the finest coastwise lines along the Atlantic Coast are those owned by railroads: the Atlantic Lines of the Southern Pacific Railroad, from Galveston and New Orleans to New York; the Old Dominion Line to New York from the Virginia ports, owned by the railroads terminating at those ports; the Old Bay and Chesapeake Lines from Norfolk to Baltimore, one owned by the Seaboard Air Line and one jointly by the Atlantic Coast and Southern Railroads; the Ocean Steamship Company from Savannah to New York and Boston, owned by the Central Railroad of Georgia. These coastwise lines extend the rails of their owners into northeastern territory, and protect the rates of shippers and receivers located on those rails. So the New England roads should be free, in the interest of protecting and extending the favorable New England rate structure, to establish when necessary a line to Galveston, or to step into the breach should the present lines from Boston to the Pacific Coast not meet the needs of New England.

Summary. The fundamentally greater cheapness of coastwise—rather than rail—transportation has been discussed. It has been apparent that an industrial region located upon coastwise routes must, in self-defense, take advantage of every opportunity to utilize them.

It has been seen that Boston's coastwise services are of particular advantage to New England in that they tend to neutralize the present trend towards a stricter application of the distance principle to all-rail rates. The application of this principle will restrict the wide markets reached by New England industries all-rail. Coastwise lines will retain, and can extend, the present favorable rates to regions that can be reached by water-and-rail routes.

Boston has at present excellent coastwise services to all leading ports from Halifax to Jacksonville. What it lacks is a line to the Pacific Coast and one to Galveston.

Transcontinental rail rates have shown a gradual tendency to favor the Middle West. First the Middle West was given as low rates to the coast as the Atlantic Seaboard had. Then lower rates were given the Middle West, the distance principle being more and more applied. This advantage of the Middle West in rates was emphasized by its quicker freight service across the continent.

The Panama Canal will give back to the East its old advantage in rates and will tend to equalize it in point of service to the coast. Rates to the coast will be port-to-port rates, plus inland rates at either end. Hence New England needs a line at its near-by water shipping point, Boston. Sailings of Boston lines to the coast deserve undivided support from New England shippers.

The rates applying between Atlantic Seaboard Territory and Galveston were examined. It was seen that originally there was a system of blanket rates from this whole territory, including New York, to Texas Common Points. The blanket was gradually

removed, and special advantages given to New York, by various occurrences: the exigencies of competition between water lines from New York to Galveston, certain Texas rates enforced by the Texas Railway Commission, and the natural desire of the New York water lines to build up local industries. If the resulting discriminations against points outside of New York are increased, it will be necessary to have a line from Boston to Galveston, to protect New England industries.

The great difficulties attending the establishment of such a Boston-Galveston line have been explained. It has been stated that the New Haven road would be best equipped to meet these difficulties, and more interested than any one else in doing so and establishing the line, should the necessity arise. Similarly the New Haven could, and probably would, take care of a service to the Pacific Coast should that become necessary. Hence it was argued that it is a mistake not to preserve the principle of ownership of water lines by New England roads.

PART II

OPERATION

A

CO-ORDINATING RAIL AND OVERSEA CARRIERS

CHAPTER XIV

A BELT LINE AND TERMINAL OPERATIONS IN BOSTON

General nature of suggestions. The following pages deal with operating conditions in the port and submit suggestions for their betterment. They do not pretend to represent a detailed solution of the operating problem, but rather to indicate the general lines along which the solution will be found when the problem is definitely taken up, in collaboration with the private interests involved. By operating conditions in the port is meant the arrangement of interchange between the carriers terminating there.

The co-ordination of rail and water lines is the business of a belt line or its equivalent.

Types of belt line. The industrial belt. There are various types of belt line. One is the industrial belt line, cutting all the railroad lines of a city. Through competition, the various rail carriers come to consider such a belt line as a part of their own rails, absorbing into the local rate the switching charge which the belt line makes for interchanging cars between its junction with the rail line and industries located on the belt. Industries so located thus have the advantage of being practically situated on each of the railroad lines of a

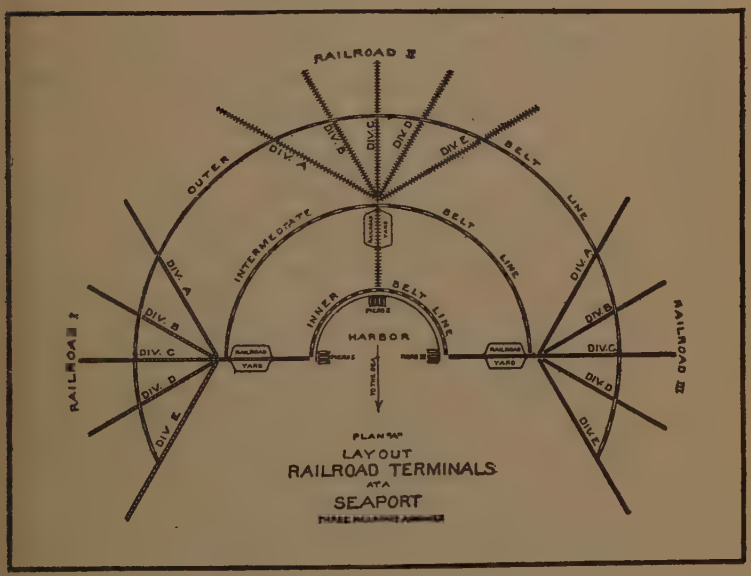
city, with each railroad competing for business of the belt by rendering superior services to its patrons. The Portsmouth Belt Line, which intersects all the railroads at Portsmouth and Norfolk, Va., is an industrial belt line of this type.

With such a belt line the port authorities have no direct business. It has nothing to do with the encouragement of new water lines or the facilitation of interchange between rail and water carriers. If the port authorities can furnish an industrial belt line of this sort, incidental to their proper work, they will of course do a service in the upbuild of the Boston industrial district.

Detour or outer belt. The second sort of belt line is a detour or outer belt, designed to divert cars around a congested area, such as a city, in their passage from one railroad line to another. The cars avoid coming into the city and being switched from one crowded terminal to another, with all the limitations put upon movements of cars on tracks in the interior of the city. Several such belt lines, or sections of them, have been built around the city of Chicago and prevent cars coming from beyond Chicago, and destined beyond Chicago, from being run into the city. This sort of belt line, like the first, is no immediate concern of the port authorities. They ought to be glad, however, if it can be provided as a by-product of their prescribed work.

Waterfront belt. It is the third type, the waterfront belt, in which the port of Boston is primarily interested. This sort of belt line is designed to run along the waterfront, cutting all the railroad lines, and with spur tracks running to all the piers. Where such

a belt line exists, operated by the port authority or some other neutral body, it takes cars from any railroad and sets them on any pier, with despatch and at a uniform, low charge. The steamer at each pier has each road competing for its exports and absorbing the belt switching charge into its local rate; every rail



line similarly competes for imports in the important matters of car supply and service to the interior. New Orleans and Montreal have waterfront belt lines of this type.

An ideal seaport layout. Plan A, on this page, illustrates an ideal layout for terminal and interchange

railroad operations in a seaport situated on a semi-circular bay of the sea. It is the sort of layout that the founders of such a city would have provided for, by the reservation of land and in other ways, if they could have foreseen the invention of the railroad and steamship, and the relations that have arisen between them, due to the development of trade. The layout assumes three railroads to be co-ordinated, the number in Boston today.

Its waterfront belt. The rails of each division of each road unite just before they come into the terminal yard of the road. All trains come into this yard. The cars are here sorted out and switched for delivery to outbound trains, industrial sidings, team tracks, freight houses or storage tracks—perhaps for later delivery to the waterfront belt line. When the water carrier served by the belt line is ready for the cars consigned to it, the railroad delivers those cars upon the belt line tracks at its junction with the belt, whose locomotive sets the cars upon the pier where they are wanted. It will be noted that the belt intersects the railroad lines inside their terminal yards, so that there is no back haul necessary to effect the interchange. The belt line is simply one of the classifications for which cars are sorted at the inbound terminal yard.

Similarly with carload freight from the water carrier to the railroad. Each day the belt line is notified of the number of cars from each carrier for each steamer next day. The belt collects these empties from the railroads in question and sets them. When the cars are loaded, the belt line switches them out and turns them over to the railroads, which, at their

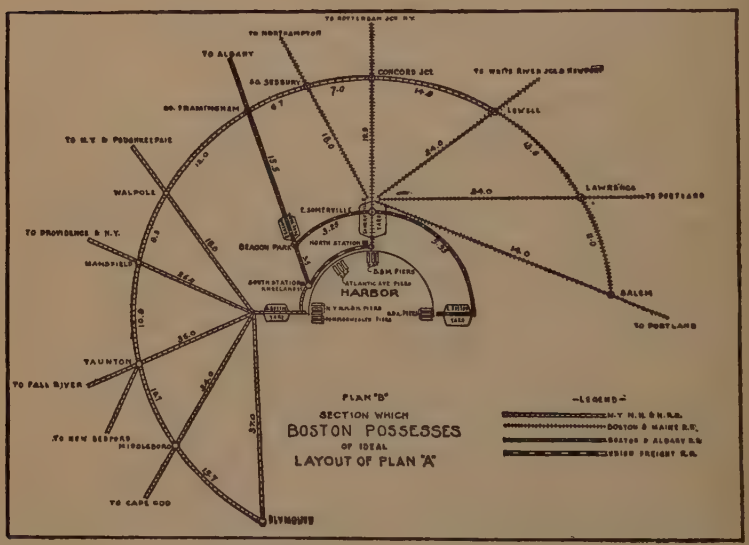
outbound classification yards, sort them into the outgoing freight trains.

Its intermediate belt. From three to five miles back from the waterfront runs another belt line, an intermediate belt. It is a semicircle parallel with the waterfront belt and similarly cutting all railroads, intersecting their terminal yards. It serves the purpose of a detour for railroad interchange—for cars that need come into the terminal yards to be sorted—and the purpose of an industrial belt line, lined with factories and warehouses. Each railroad would also have frequent freight houses and team tracks along this neutral belt. The business section of the city would grow up between the waterfront and the intermediate belts, the residence section between the intermediate and outer belts, or even out beyond the latter.

Its outer belt. The outer belt line is twenty miles back from the waterfront, semicircular and parallel to the first two belts. Like them it cuts all the railroad lines, but (see Plan A) cuts them out considerably beyond the point where the divisions of each road unite to enter the terminal yard. Inbound cars on each division that need not come into the terminal yards for sorting may be stopped at the intersection of this outer belt and, if destined out on certain other divisions of other roads, save considerable mileage by not being brought into the terminal yard for distribution by the intermediate belt. As time goes on, the industrial traffic of this latter line becomes heavier and it is desirable to have the outer belt relieve it of much interchange work. At the junctions of the outer belt line with the divisions of the three roads, suburban

towns arise to which, in time, manufacturing industries overflow from the crowded intermediate belt.

Boston's physical situation. The reason for describing in general terms an ideal layout of this type is that there exist at Boston parts of all these three belts, so far as physical location is concerned, but not



in the matter of neutral ownership. Plan B, on this page, is a diagrammatic modification of Plan A. It is intended to show the sections of waterfront, intermediate and outer belt lines at Boston, and the parts they play, or can play, in the co-ordination of interchange between railroads or between railroads and water carriers.

New Haven. The divisions of the New Haven rail-

road are seen to converge before entering the terminal yard at South Boston. Adjacent are the New Haven's piers and Commonwealth Piers Nos. 5 and 6.

Boston & Albany. The single line of the Boston & Albany runs straight into Boston to South Station. The road's main terminal yard lies several miles out, at Beacon Park (Cottage Farm), from which a branch of the Boston & Albany runs around the city, through the main freight yard of the Boston & Maine and into the Boston & Albany's terminal yard serving its piers at East Boston.

Boston & Maine. The Boston & Maine's situation is not so simple, because it is a loose amalgamation of separate railroad lines never built to be divisions of the same system, and never fully co-ordinated, at the terminals, into the system. But as a general statement it is true that the divisions of the Boston & Maine unite and enter the main terminal yard at East Somerville. Adjacent are the Boston & Maine piers, known as Hoosac Docks and Mystic Wharf.

The present outer belt. The outer belt is formed by lines of the New Haven and Boston & Maine railroads which were never intended to serve as a belt, and which are not operated primarily as such, today. The main line of the old Boston, Stonington, Fitchburg and New Bedford Railroad runs from Taunton to Framingham, thence by a branch to Lowell. There is a branch of the New Haven from Taunton to Plymouth. There is a branch of the Boston & Maine from Lowell to Salem. These lines together form the outer belt and intersect the divisions of the three Boston railroads as follows (see Plan B):[1]

[1] See also Map I, following the text.

Road	From	To	Intersection with outer belt
New Haven	Boston	Plymouth	Plymouth
New Haven	Boston	Cape Cod	Middleboro
New Haven	Boston	Fall River and New Bedford	Taunton
New Haven	Boston	Providence	Mansfield
New Haven	Boston	Poughkeepsie and New York	Walpole
Boston & Albany	Boston	Albany and the West	South Framingham
Boston & Maine	Boston	Northampton	South Sudbury
Boston & Maine	Boston	Rotterdam Jct., N. Y. and the West	Concord Junction
Boston & Maine	Boston	White River Jct. and Canada; also Newport, Vt. and Canada	Lowell
Boston & Maine	Boston	Portland	Lawrence
Boston & Maine	Boston	Portland	Salem

Thus, physically, the outer belt line exists.[1] Over each part of it are already operated two or more freight trains per day, to which can be added, at small extra cost, the cars involved in any interchange not now taken care of.

Outer belt surveyed by Port Directors. The engineers of the Port Directors have surveyed and reported upon two alternative outer belt lines, somewhat inside the present outer belt, and running through Readville, Needham, Wellesley, etc. These were the innermost routes practicable. Such a belt would be between the outer belt and the only desirable intermediate belt; namely, one that intersects the terminal yards of the

[1] Another outer belt consists of the Boston & Maine from Lowell to Ayer to Worcester, and the New Haven from Worcester to Providence. (See Map II, following text.) This line is used largely as a detour, avoiding the congested Boston district, for freight between northeastern New England and New York, or the South and West via New York.

roads. For interchange, the surveyed route would have no appreciable advantage over the present outer belt line. It would not be an intermediate belt because it would run far out beyond the Boston terminal yards of the railroads. Its cost for land and construction would be very high ($260,000 per mile over one route surveyed, $316,000 per mile over the other).

Instead of adding new interchange traffic to that already existing, such a public outer belt would require the operation of a new freight train and switching service. Proper charges for services by that belt would have to provide not only the cost of operation of the new trains and locomotives required, but also for the entire interest on the heavy investment in the road.

It would be no improvement over present belt. The traffic on the present outer belt could not and would not be transferred to the new. To a large degree this present traffic is not interchange, but local business, that must move over the present route, such as the heavy traffic between the New Bedford Sound Line and Lowell, Fitchburg, South Framingham, etc. Reasonable rates on new railroad interchange traffic added to this present movement would need provide only for a quota of the cost of operation of trains already running, and for a quota of interest on the cost of a roadbed already heavily used. It is not reasonable to expect to decrease the charges for interchange or terminal services when the inherent cost of the services performed is greatly enhanced.

No new belt lines should be built. In general, then: Boston has an outer belt. In so far as it does not serve more extensively for railroad interchange, that is due to the failure of the railroads themselves to

provide for its use. Boston does not want a new outer belt, it cannot have an intermediate belt. It must seek to gain the equivalent of an intermediate belt in another way.

The present intermediate belt. At the present time the Grand Junction Branch of the Boston & Albany Railroad constitutes, physically, two-thirds of an intermediate belt. It runs from the Beacon Park yard of the Boston & Albany at Cottage Farm through the East Somerville yard of the Boston & Maine, into the yard of the Boston & Albany which serves that road's piers at East Boston. This intermediate belt, however, is owned and operated as a Boston & Albany branch. In addition to being a belt which conducts an interchange between the Boston & Albany and the Boston & Maine, it is an industrial belt of high importance. Something over sixty industries are located upon it. Finally, it serves as a waterfront belt. At East Somerville it drops Boston & Albany cars destined for Boston & Maine piers at Hoosac or Mystic, and picks up Boston & Maine cars destined for the piers at East Boston. The Grand Junction was designed as a waterfront belt reaching the Boston & Albany terminal at East Boston. Incidentally it has become a waterfront belt serving the Boston & Maine piers, an intermediate belt interchanging with the Boston & Maine, and an industrial belt of the first order.

Boston oversea piers parts of railroad terminals. It is to be remembered that all of the ocean-going steamer piers likely to be built in Boston are located adjacent to the terminal yards of the New Haven at South Boston, the Boston & Maine at Charlestown (Hoosac and Mystic), or the Boston & Albany at East

Boston. Each of these three groups of piers is, and will long continue to be, operated as part of the railroad terminal to which it is attached. The new Commonwealth Piers, upon construction, enter into this system. Commonwealth Piers 5 and 6 are, from an operating point of view, parts of the New Haven terminal. Similarly, Commonwealth Pier 1 at East Boston and other East Boston piers as they may be built would be operated as a part of the Boston & Albany pier cluster there.

Boston intermediate and waterfront belts can be identical. In this section, dealing with Operation, the terms "South Boston piers" and "East Boston piers" include the Commonwealth Piers which are, for operating purposes, parts of the railroad pier groups in those sections of the port. In order to reach an ocean steamship pier it is necessary to reach the railroad terminal from which that pier is served; that is, to reach the yard of the road in question, or the switch by which it serves the pier. There are three railroad terminal yards, each connected with its own pier cluster, and each to be connected with the terminal yard and pier cluster of each of its fellow roads.

What Grand Junction can now do. The Grand Junction Railroad, if it were publicly owned and if it could be extended—as it cannot be, by reason of excessive cost—from Beacon Park to the South Boston railroad yard, would be, so far as the foreign trade is concerned, an ideal waterfront belt. Similarly, it would provide ideally for railroad interchange and would furnish the opportunity for an expansion of the present industrial development along its route. At the present time, it provides, physically, for adequate interchange as follows:

Between Boston and Albany yards and the Boston & Maine yards.

Similarly, it provides for the following waterfront service:

Between Boston & Albany yard and East Boston piers.
Between Boston & Albany yard and Charlestown piers.
Between Boston & Maine yard and East Boston piers.

What Grand Junction fails to do. The gap between Beacon Park and the South Boston yard results in the following interchange movements being inadequately provided for, in Boston:

Between the New Haven yard and the Boston & Albany yard.
Between the New Haven yard and the Boston & Maine yard.

Similarly, in Boston, the following waterfront services are inadequately rendered:

Between the Boston & Albany yard and the South Boston piers.
Between the Boston & Maine yard and the South Boston piers.
Between the New Haven yard and the Charlestown piers.
Between the New Haven yard and the East Boston piers.

That is, the New Haven yards and piers are unco-ordinated with the rest of the terminal system, for either inter-railroad or waterfront interchange. The equivalent of the missing link between South Boston and Beacon Park is what should be developed.

Union Freight and South Station switch. Before seeking for that equivalent, it is well to stop and consider the Union Freight Railroad which, in conjunction with a midnight switch across the South

Station passenger yard, tries to supply the connection between the New Haven yard and piers on the one hand, the Boston & Albany and the Boston & Maine yards and piers on the other.

From New Haven to Boston & Albany. Some carload traffic moving on through rates between East Boston piers and the neighborhood of Providence, Fall River and New Bedford is interchanged between Boston & Albany and New Haven at Worcester. Otherwise, New Haven cars for export at the Boston & Albany piers at East Boston are brought into the South Boston yard and some time between midnight and five o'clock in the morning, when no passenger trains are running, are switched across the South Station passenger yard to the Kneeland Street tracks of the Boston & Albany, which pulls the cars out to Beacon Park and thence by the Grand Junction Railroad to East Boston. The distance from Kneeland Street to East Boston is a road haul of 12.8 miles, for which the Boston & Albany charges 3¢ per 100 pounds. The New Haven performs its nocturnal switching as a part of its terminal service, included in the Boston rate. In general, cars from the New Haven's piers to Boston & Albany rails move on through rates via Walpole-South Framingham, as will be described.

From Boston & Albany to New Haven. The reverse traffic, from the Boston & Albany rails to New Haven points, or from the Boston & Albany rails to the New Haven's piers, is all moved on through rates, by detouring the Boston & Albany cars at South Framingham, whence they are handled by the New Haven via the outer belt. This movement from the Boston & Albany is large and cannot be handled by the limited and dilatory method across South Station.

Export and import traffic via the South Framingham route to South Boston cost the Boston & Albany (New York Central) heavily. The traffic is handled by the New Haven, not for a switching charge, but for a division of the through rate. For instance, from South Framingham to Commonwealth Pier the New Haven gets 20% of the through export rate from Chicago, and a larger percentage of the through rate from nearer western points.

What the South Station switch and the outer belt do badly or expensively for the New Haven and the Boston & Albany, the South Station switch and the Union Freight do badly and expensively for the New Haven and the Boston & Maine.

The Union Freight. The Union Freight Railroad is owned by the New Haven but is operated as an independent belt line on Atlantic Avenue. At Kneeland Street it effects a junction with the Boston & Albany and New Haven, a junction which the New Haven reaches by working its cars by night across the South Station passenger yard. The Union Freight thence runs along the surface of Atlantic Avenue for two miles to a junction with the Boston & Maine near North Station. Except for local Atlantic Avenue switching movements, the Union Freight may be operated only at night, except for emergency freight. Its capacity is very limited and is taxed by its attention to the switching for the industries it serves and the Atlantic Avenue piers of the coastwise steamers which it reaches.

Much through traffic interchanged between the New Haven and Boston & Maine is moved by the Union Freight, especially when from or to a point on either road inside the outer belt, which is otherwise exten-

sively used for New Haven-Boston & Maine interchange. This Union Freight interchange traffic moves at through rates and the division allowed the Union Freight for the transfer is 2¢ per 100 pounds.

Union Freight between South Boston piers and Boston & Maine. The Union Freight is extensively used for interchange between New Haven rails and Charlestown piers and between Boston & Maine rails and South Boston piers. It might seem cheaper to detour via the outer belt this latter traffic, which is fairly heavy. But the New Haven demands, as its revenue from such a joint service, not a switching charge but a good portion of the through rate to or from the South Boston piers. This makes it usually cheaper for the Boston & Maine to bring the cars into its terminal yard and have them switched across to the New Haven by the Union Freight. This switching is done subject to the small capacity of the method used, and subject to the limitations which night switching imposes. At present only Commonwealth Pier 5 at South Boston is the subject of any appreciable exchange of freight with the Boston & Maine. To get freight to or from this pier via Union Freight it costs the Boston & Maine 3.5¢ per 100 pounds, divided as follows:

To the Union Freight (which hereby cuts in two its regular 2¢ charge for transfer between the two railroads)	1. ¢
To the New Haven for switching between Kneeland Street and Commonwealth Pier, and loading or unloading the car there	2. ¢
To the Port Directors, wharfage for accommodating the freight at Commonwealth Pier . . .	.5¢
	3.5¢

Between New Haven and Charlestown piers. There is less congestion in the handling of the cars between New Haven and Boston & Maine piers. In the first place, the traffic is not large; in every direction the New Haven's contribution to the export and import traffic is small. Moreover, the New Haven has, via the outer belt, through rates between New Haven points and Hoosac or Mystic, applying to and from New Haven points beyond the outer belt. Cars between near-by New Haven points and Hoosac or Mystic move on through rates via the Union Freight, with the same delay and expense that is involved in the heavier movement from Boston & Maine rails to South Boston piers.

Union Freight and Northern Avenue. Connection between the Union Freight and the New Haven will be improved when the Union Freight is extended from Atlantic Avenue over the Northern Avenue Bridge, which was built to carry it but on which, for various reasons, the rails have never been laid. It is to be hoped that this will occur under the present city administration. But this does not remove the inherent difficulty of the limited capacity of the Union Freight, nor the conditions which must continue to forbid the use, by day, of a switching service through the city's marginal teaming street.

It is to be recalled that the port authorities are directly interested only in the operation of getting freight from the rails of each railroad to each group of piers. The speed and the charges at which this is accomplished are matters of considerable moment, especially with regard to export and import traffic competitive with other ports.

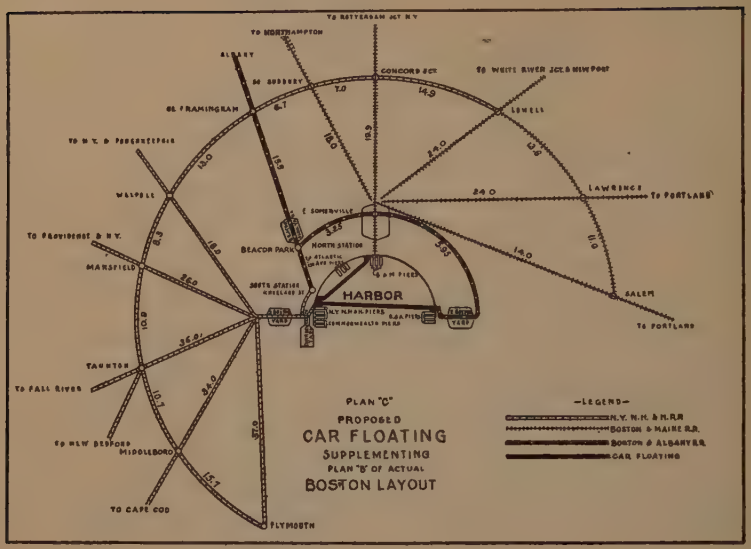
CHAPTER XV

INTERCHANGE BY CARFLOAT ROUTES

Imperfect operating movements in Boston. Of all the difficulties that have been enumerated, the port authorities are immediately interested in the following:

1. Export and import traffic between the New Haven rails and East Boston piers.
2. Export and import traffic between the New Haven rails and the Charlestown piers.
3. Export and import traffic between South Boston (New Haven) piers and the Boston & Maine rails.
4. Export and import traffic between South Boston piers and the Boston & Albany rails.

Two carfloating services the remedy. These four difficulties can be remedied by the institution of two carfloating services, one from South Boston to Charlestown and one from South Boston to East Boston. The carfloating services represent the principle already discussed in the Introduction, of floating freight past congestion. The difference between this case and the cases cited is, that here there is no breaking bulk, no handling of the freight at either end of the route. The carfloats and the towboats handling this traffic might be supplied by the Port Directors but should be leased and operated by the three Boston railroads jointly. By buying towboats and carfloats and by



building appropriate float bridges at the three points in question, there would be created the equivalent of an intermediate and waterfront belt line, connecting and co-ordinating each railroad yard with the yard and the piers of each other road. This water belt line is free of all congestion; its roadbed is given and maintained free; it is capable of any expansion. The location of the two carfloating routes, conformed to the type of diagram already used, is shown on Plan C, on this page.

New Haven to East Boston. The operation of the carfloating routes would be somewhat as follows:

1a. Export freight arriving on the New Haven destined to East Boston pier for export. These cars come into the New Haven yard in the same trains with cars having freight for export at their own piers, or

local freight. These export cars are pushed by the New Haven locomotive over the float bridge, upon the car float, which carries them across to the float bridge at East Boston, adjacent to the East Boston pier. From this bridge the Boston & Albany locomotive pulls the cars off and sets them. After unloading, the cars are pushed back on the float by the Boston & Albany locomotive and towed back across to the South Boston float bridge. The charges for this service should be 2.5¢ per 100 pounds, divided as follows:

For float service	.5¢
To Boston & Albany, for setting the car, unloading, and use of pier	2. ¢
	2.5¢

Savings on present method. The New Haven, as part of its free terminal service, would be relieved of the present expensive night switch across South Station; it would need merely to push the cars out of its yard upon the float. The Boston & Albany would get 2¢ for setting and unloading the cars, while at present it gets only 3¢ for the same service plus a road haul of 12.8 miles from Kneeland Street to East Boston. The compensation is fair to all parties involved. It is 0.5¢ per 100 pounds, $1.50 per car of 30,000 pounds, cheaper than the present movement and it is twenty-four hours quicker. The importance of the latter factor, for this movement, is great. The shippers in New Haven territory, so far as service goes, at present find themselves very far removed from most of the Boston oversea piers—situated at Charlestown and East Boston—and find themselves very near New York.

1b. Import traffic arriving at East Boston for

shipment over New Haven rails. This traffic is the converse of that in 1a. *Mutatis mutandis,* the same considerations apply and the same savings in expense and time are effected. There are a few through import commodity rates applying from Boston & Albany piers to certain New Haven points, via Worcester. This traffic also could be more quickly and cheaply handled by the proposed carfloat route.

2a. *From New Haven to Charlestown piers.* Export traffic arriving on New Haven rails for export at the Charlestown piers. These cars would arrive in South Boston in regular New Haven trains, go through the New Haven yard, and later be put aboard the carfloat, taken off at Charlestown by the Boston & Maine locomotive and set on a Boston & Maine pier at Hoosac or Mystic. The charge for this service should be 2.5¢, divided as follows:

For float service	0.5¢
To Boston & Maine, for setting the car and unloading	2. ¢
	2,5¢

Savings on present method. The New Haven, as part of its free terminal service, would be relieved of the present expensive delivery to the Union Freight via South Station and would merely have to deliver the cars over the float bridge adjacent to its South Boston yard. The Boston & Maine would get 2¢ for switching the car to the pier and unloading. It cannot get more than this as its division of through rates between New Haven points and Boston & Maine piers, via Boston. Switches to Boston & Maine piers from the junction of the Boston & Maine and Union Freight are no simpler than similar switches proposed from

the float bridge at Mystic. As has been explained, certain of this traffic, that between Boston & Maine piers and New Haven points beyond the outer belt, now moves at through rates via the outer belt and the Boston & Maine. Some of this traffic can be more cheaply and expeditiously brought into Boston and floated across the harbor. The compensation is fair to all parties involved and is less than the cost to the two railroads of the similar transfer service they are now rendering each other at through rates, whether via the Union Freight or via the outer belt. In addition it would be at least twenty-four hours quicker than the present methods.

2b. Import traffic arriving at Charlestown piers for shipment over New Haven rails. This movement is the converse of 2a. The same savings in money and time are effected.

3a. *From Boston & Maine to South Boston.* Export traffic arriving on Boston & Maine rails for ocean shipment at South Boston piers. These cars would arrive in trains with other Boston & Maine traffic and would be sorted in the Somerville yard, then by a Boston & Maine switcher put aboard a carfloat over the float bridge, located probably at Mystic Wharf. At South Boston the New Haven locomotive would pull the cars off the float and set them for delivery on the pier, later returning them to the float and so to the Boston & Maine, as soon as the cars were unloaded. Very probably they would go back with loads of import freight, in which case they would fall under 3b. Just as at present, the cars would be returned without a switching charge if empty, with one if loaded. The charge for this new switching service would be 3¢ per 100 pounds, divided as follows:

For float service	0.5¢
To New Haven, for setting the car and unloading it	2. ¢
To Port Directors as compensation for use of Commonwealth Pier	0.5¢
	3. ¢

Savings over present method. The Boston & Maine, as part of its free terminal service, would deliver the cars to the float bridge, instead of to the Union Freight as at present. There is no essential difference in the nature of these movements. The New Haven would receive 2¢ per 100 pounds for taking the car from the adjacent float bridge, setting it on the pier, and unloading it. It now receives 2¢ on this same traffic, which it must likewise set and unload, after having received it from the Union Freight at Kneeland Street and switched it across the South Station passenger yard. Compensation to all parties is fair. The switching charge would be less than the present switching charge[1] by 0.5¢ per 100 pounds, $1.50 per car of 30,000 pounds, and the service would be twenty-four hours quicker.

3b. Import traffic arriving at the New Haven piers destined for Boston & Maine rails. This situation is the converse of 3a. By substituting the float service for the present Union Freight transfer, the same saving in time and money would be effected.

4a. *From Boston & Albany to South Boston.* Export traffic arriving over the Boston & Albany rails and destined for export at South Boston piers. This

[1] Switching charge on export or import traffic between New Haven piers and Boston & Maine connection with Union Freight is 3¢ per 100 lbs.: 2¢ to the New Haven, 1¢ to the Union Freight. If the traffic moves over a pier of the Commonwealth, the Commonwealth is paid 0.5¢ wharfage.

traffic would come into the East Boston yard of the Boston & Albany along with its other export cars. The cars would be pushed by the Boston & Albany switcher upon the East Boston float bridge and taken to the float bridge at South Boston, thence pulled, set and unloaded by the New Haven road. Then they would be sent back, without another switching charge if empty, with one if loaded. There is at least an even chance that they would be loaded. The charge for the transfer described would be 3¢ per 100 pounds, divided as follows:

For float service	0.5¢
To New Haven, for setting and unloading the car .	2. ¢
To Port Directors as compensation for use of Commonwealth Pier	0.5¢
	3. ¢

Savings over present method. The Boston & Albany, instead of losing this traffic at South Framingham and (for instance, on western traffic, the principal item) paying the New Haven 20% or more of the Boston rate, would carry the traffic through to East Boston and have to absorb only a 3¢ switching charge. Provisions for export move on a sixth class rate, the lowest class. The rate from Chicago to Boston is 30¢ per 100 pounds. The New York Central Lines must now pay 6¢ of this 30¢ to the New Haven road for what is, from the Boston & Albany's standpoint, a belt terminal switching service. The 20% division bears no relation to the mileage involved.

The compensation is fair to all parties. The New Haven road would receive 2¢ per 100 pounds for setting and unloading the car. The New York Central Lines, for a slightly larger terminal service, would

earn 3¢ per 100 pounds, $9.00 per car of 30,000 pounds, more on sixth class freight from Chicago. Of course the Boston & Albany's savings would be still greater on the higher classes of freight, where the New Haven's 20% works out into a larger amount per 100 pounds. This increase in earnings would without doubt work to increase the interest of the Boston & Albany, and its connections, in ships at the South Boston piers. The service afforded these piers, in the case of freight hauled by the Boston & Albany, would be better than it is today. The Boston & Albany has at least two switches a day from Beacon Park to East Boston, and at Beacon Park the export cars on through trains from the West are sorted and on their way to East Boston before the cars dropped off at South Framingham are in the New Haven train. This New Haven train does not run to South Boston but drops the South Boston cars off at Walpole, where they wait for another train to pick them up and carry them to destination.

Bettering of service to and from New Haven territory. For fear that too much emphasis has been placed upon the savings in money and transportation effort, the element of improved service ought again to be set forth. The necessity of bringing New Haven territory nearer, in time, to Charlestown and East Boston piers has been mentioned. A solicitor for export freight for Boston in New Haven territory will find as obstacles low rates to and from New York, especially via the Sound Lines, and a clock-like overnight service. No one can count on just how long it will take to get his car to Hoosac, Mystic or East Boston, or from those points. New York is a sure thing. With this new service in operation a solicitor

could promise delivery at any ocean steamer pier in Boston on the same day the car arrives in Boston. He could promise that on the day the car of import freight was loaded, it would be set into the New Haven train that carries local freight from Boston.

Bettering of service of South Boston piers. It is just as necessary to get the South Boston piers into rapid connection with the yard of the Boston & Maine and the Boston & Albany. These are the roads which now carry most of the through import and export freight of the South Boston piers and which, to a large degree, always will. The advantages of the South Boston situation—particularly in the matters of passengers and local freight drayed to and from the pier—are going to be neutralized and overcome if these piers cannot have fully competitive railroad service to and from the yards of the principal carriers of their through freight.

Proposed cost to Boston & Albany and Boston & Maine of reaching South Boston piers. The interest which the Boston & Maine and Boston & Albany and their connections show for the traffic of the South Boston piers will depend largely upon the sacrifices they have to make in delivering or getting that traffic. It is possible to arrive at an approximate estimate of the sacrifice involved, as compared with the cost of moving the same freight over one of their own piers. If the Boston & Maine delivers export traffic from its yard to one of its own piers, the terminal cost is about as follows:

Switching and setting the car	1. ¢
Handling the freight out of the car	1. ¢
Wharfage (compensation for use of the pier)	0.5¢
	2.5¢

Boston & Maine. It would cost the road no more to set the car upon the carfloat than to set it upon their own pier. It then saves the two latter items in the above table, amounting to 1.5¢.[1] The service from the Charlestown float bridge to the floor of Commonwealth Pier would, as has been shown, be 3¢. The Boston & Maine would save 1.5¢ and pay 3¢, making the traffic of the South Boston piers cost the road 1.5¢ more than traffic to and from its own piers. The difference is nothing compared with what other terminal carriers do at other ports, or compared with what the Boston & Albany now voluntarily does for Commonwealth Pier.

Boston & Albany. In the same way the Boston & Albany would have to pay approximately 1.5¢ per 100 pounds more for South Boston pier traffic than it costs it to handle its own export and import business at East Boston. The Boston & Albany would save the large sacrifice in rate percentages which it now suffers in working this business via South Framingham.

Carfloating routes for railroad interchange of cars. The carfloating routes, then, would supply a water-front belt which promises savings in expense and time of service. Can this belt also be used as an intermediate belt, to connect the yards of the New Haven with those of the Boston & Albany and the Boston &

[1] It may be objected that the Boston & Maine does not save the 0.5¢ wharfage. But each 100 lbs. taken from the Boston & Maine rails to Commonwealth Pier is prevented from taking up Boston & Maine pier space, which the Boston & Maine says is worth 0.5¢ for every 100 lbs. that passes over it. This space is then available for other freight which can and does get exported at the Boston & Maine piers. So long as these piers are kept busy (and there is no evidence or prospect that they will not be) the Boston & Maine is saved 0.5¢ per 100 lbs. on all freight which it carries, and for which some one else (the Commonwealth) provides pier accommodation.

Maine, and so to provide for quick interchange of joint traffic to or from near-by points? It is as suitable for this transfer work as for that already described.

Movements now badly performed. It is recalled that the Boston & Maine and Boston & Albany yards are already connected by the Grand Junction Railroad. What is needed is the equivalent of the impossible extension of the Grand Junction from Beacon Park to the South Boston yard of the New Haven. This extension, or its equivalent, would provide for exchange of cars:

1. Between the New Haven and the Boston & Albany.
2. Between the New Haven and the Boston & Maine.

1a. *Through rate business between New Haven and Boston & Albany.* The business in question is that moving between New Haven points and points on the Boston & Albany or its connections. It is principally a matter of points on the Boston & Albany connections, because the Boston & Albany has few local points of importance not also reached by the New Haven. This business now moves on through rates via South Framingham. As the New Haven's policy is one of taking approximately equal percentages via all junctions, the Boston & Albany would prefer to drop these cars at South Framingham, and receive them there, rather than to haul them in to an East Boston float bridge. Business between New Haven near-by points and stations on the Grand Junction Branch, East Boston, Chelsea, Everett and East Cambridge could be more economically handled across by carfloat.

1b. *Competitive business switched at Boston.*

There is a considerable movement of domestic traffic from beyond New England, carried to Boston by the New Haven and destined for delivery on sidings on the Grand Junction Railroad. This is now switched across South Station by the New Haven, which absorbs the Boston & Albany switching charge of 3¢ per 100 pounds to destination. This could better and cheaper move by carfloat. Conversely, western domestic freight for South Boston industries, solicited by the Boston & Albany's connections in the West, is carried into Kneeland Street by the Boston & Albany, which absorbs the New Haven's switching charge of 1.5 or 3¢ per 100 pounds for setting the car on South Boston siding. The New Haven might prefer to have this traffic over its float bridge. As we saw, nearly all traffic on through rates between the New Haven and the Boston & Albany is handled, and can best be handled, via South Framingham. The small interchange between near-by New Haven points and near-by points on the Boston & Albany main line will probably continue to be handled via the South Station passenger yard, at least so long as the New Haven includes the switch across that yard as a part of its free terminal service.

2a. *Through rate business between New Haven and Boston & Maine.* Here the case is different. The traffic moving from a near-by New Haven point (inside the outer belt) or to a near-by Boston & Maine point is fairly heavy. The delays in the present movement via the Union Freight are great and have been the subject of repeated complaint by communities north and south of Boston. There is a class tariff covering through rates on traffic between all New Haven points and all Boston & Maine points. But in

the through rates between near-by points on the Boston & Maine and all near-by points on the New Haven, the present expensive method of transfer is taken into account: the New Haven's switch across South Station, the Union Freight's 2¢ charge for movement to the Boston & Maine connection point, the Boston & Maine's switch to its outbound yard. By use of the float service the New Haven would be spared its South Station switch and the two roads would pay 0.5¢ per 100 pounds for interchange of cars, instead of 2¢ as at present. The service between points north and south of Boston, respectively, would be put upon a reasonable basis. Cars arriving at the Boston & Maine yard would be in the New Haven outbound trains on the same day. More than the freight advantages of the tunnel, which the New Haven once proposed to build from the north to the south of Boston, would be secured, for there would be no expensive construction—on which interest would have to be earned—effecting the transfer.

2b. *Competitive business switched at Boston.* On competitive business from the West carried by the Boston & Maine into Boston, for a South Boston industry, the present switching charge absorbed by the Boston & Maine is 3.5¢ (2 + 1.5) or 5¢ (2 + 3¢) per 100 pounds.[1] This traffic carried by the carfloat, besides being more expeditiously handled, would cost the Boston & Maine 1.5¢ per 100 pounds less than the present method.

Between certain points beyond outer belt. The carfloat route could be advantageously used not only by

[1] The New Haven charges 1.5¢ for switching from its junction with the Boston & Albany or Union Freight to locations inside of Massachusetts Avenue, 3¢ for locations out beyond that line.

traffic whose source or destination lies inside the outer belt, but also by certain through traffic to and from points beyond. For instance, there is some movement between points such as Middleboro and Plymouth and the Cape, on the one hand; and, on the other, Lawrence, Salem, or points on or via the two divisions to Portland, including points in Maine. From Middleboro to Lawrence (the least saving effected), the distance would be 64.2 miles, compared with 85.1 miles over the outer belt route.[1]

Floating self-supporting. The initial charge, for floating, of 0.5¢ per 100 pounds, minimum $1.50 per loaded car, will be sufficient to support floating operations. The revenue would be 10¢ per ton for a maximum carfloat distance of 2.2 miles through the still waters of the harbor. A few years ago the New Haven was floating cars in New York over distances averaging over 10 miles—one of the principal movements being over the 14 miles from Harlem River to Greenville, N. J.,[2]—for less than 13¢ per ton carried, including operation, interest and depreciation on floating equipment and float bridges.[3] These carfloats moved over a 10- to 14-mile long, densely congested waterway, past Hell Gate, and against the fierce tides of the East River.

[1] See Plan B, page 256.

[2] The New Jersey freight terminal of the Pennsylvania.

[3] This can be estimated in another way. Car floating in New York costs the New Haven 13¢ per car mile. Assuming that one-third of the movement on the Boston carfloats would be empties, paying no fare, the earnings per car mile would be 52¢ on the longer float distance, the 2.2 mile route from South Boston to the Boston & Maine float bridge.

CHAPTER XVI

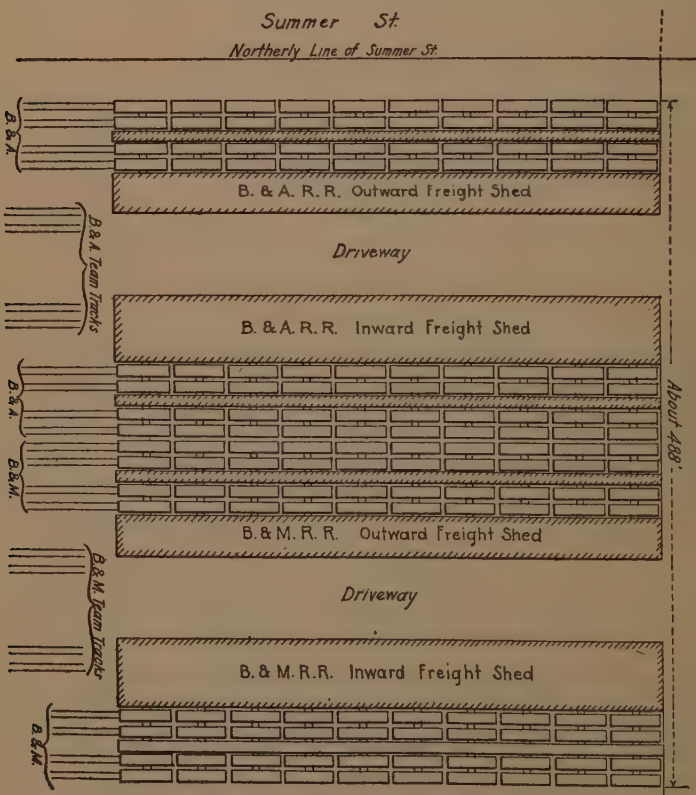
INCIDENTAL INDUSTRIAL DEVELOPMENT OF BOSTON

Carfloat belt and South industrial Boston. Finally, the carfloat belt line described can be used as an industrial belt, to open for industrial development the 6,400,000 square feet of State-owned land at South Boston. The Boston & Maine and Boston & Albany can reach, by carfloating, the present Commonwealth railroad yard at South Boston, back of Commonwealth Pier 5. This railroad yard could be extended and operated as a joint terminal by all three Boston roads, any one of them thus serving industries at South Boston connecting with the yard by spur tracks. To perfect the new industrial situation, the Boston & Maine and Boston & Albany should be given land for freight houses at South Boston.

Boston & Maine and Boston & Albany freight houses at South Boston. The Boston & Albany has long wanted to get an entrance into South Boston. They can float their cars in and buy land for a freight station and team tracks not inferior in situation to that occupied by some of the New Haven freight houses at South Boston. The Boston & Maine has lacked an entrance to the southern end of the town, especially since, some years ago, the Boston & Albany refused to switch, at any terms, traffic between the Boston & Maine rails and Boston & Albany deliveries

on its main line inward from Beacon Park. The Boston & Maine can buy land for a freight station and team tracks in a suitable location in South Boston. Proposed freight stations for the Boston & Maine and Boston & Albany at South Boston, located at the intersection of C and Summer Streets, are shown on Plan C1, on this page.

Boston & Albany. The result would be that the Boston & Albany would reach its South Boston freight


Summer St
Northerly Line of Summer St
B. & A.
B. & A. R. R. Outward Freight Shed
B. & A. Team Tracks
Driveway
B. & A. R. R. Inward Freight Shed
C Street continued
About 488'
B. & A.
B. & M.
B. & M. R. R. Outward Freight Shed
B. & M. Team Tracks
Driveway
B. & M. R. R. Inward Freight Shed
B. & M.

Plan C1 Layout for Boston and Albany & Boston and Maine Freight Stations South Boston
Scale 1 in. = 50 ft.

station over its own rails, or rather, its own float-and-rail service from East Boston. It would also reach, over its own rails, industries on the industrial tracks at South Boston. The Boston & Albany's own locomotive (that of its terminal company) at South Boston every afternoon would pull its cars from the freight station and its outbound cars, or empties, from the tracks of South Boston industries. At the same time, cars of import freight from Commonwealth Pier would be gathered. The three groups of cars would be consolidated on the Boston & Albany float, taken across to East Boston, thence to Beacon Park and put into the regular Boston & Albany trains. Excepting perhaps in the case of near-by points, the Boston rate would apply from South Boston.

Boston & Maine and New Haven. Similarly, the Boston & Maine over its own rails would reach and serve its South Boston C.L. and L.C.L. patrons. The New Haven would see the spur into the South Boston industry operated as a part of its own terminal and would similarly apply the Boston rate to traffic to and from this industry.

Limitations of present industrial locations. The result would be a unique industrial situation, both with regard to rates and service. To understand it requires a brief consideration of the workings of rates to and from specific Boston locations. If an industry is located, for example, on the Boston & Albany (for instance, on the Grand Junction Branch at East Boston), the Boston rate, without additional switching charge, carries cars of freight between that industry and all points on or via the Boston & Albany. But suppose the shipment is to or from Nashua? Then the East Boston shipper pays $4.00 per car plus the

Boston rate. The $4.00 per car is what the Boston & Albany charges the Boston & Maine for switching that car; the Boston rate is the Boston & Maine's rightful compensation for hauling the car on to Nashua. Only the Boston & Maine reaches Nashua, and this railroad need make no sacrifice, in the matter of absorption of switching charges, in order to get the car to haul. If the car were going to Buffalo, the Boston & Albany and New York Central would of course haul it there for the Boston rate, applying from the factory door. The car could also move to Buffalo via the Boston & Maine and the West Shore, if that route could get hold of it. But they can manifestly charge no more than the Boston rate from the factory door to Buffalo, for the Boston & Albany-New York Central stand ready to haul the car at this flat rate. Therefore, the Boston & Maine must absorb, into the Boston-Buffalo rate, the switching charge which the Boston & Albany sees fit to make for hauling the car from East Boston to East Somerville, the Boston & Maine junction point. Now the Boston & Albany does not care to encourage the routing, via the Boston & Maine, of traffic which it could personally carry, so on this competitive traffic it charges, for switching, class rates varying from 80¢ to $1.40 per ton, or $8.00 to $14.00 per 10-ton car. The Boston & Maine stands willing to absorb this and does so. But the shipper on a Boston & Albany siding feels under the strongest moral obligation to give all "competitive" business to his parent road. The Boston & Albany switching service from his factory is arranged to connect with the Boston & Albany fast trains, not with those of the Boston & Maine. The result is that the Boston & Maine gets little of the business. That is, on "com-

petitive" business, industries located on only one road cannot have competitive service.[1] On non-competitive business (to and from points reached by only one road or its connections) these industries have a switching charge added to the rate in the case of all points except those reached by the parent road.

Limitations removed at South Boston. Neither of these limitations apply to the South Boston situation. The flat Boston rate would be given on shipments to local points on all lines, as well as to all competitive points. On competitive business there would be real competitive service. No one road would control the switching rates or the switching service of these industries, for switching would be done by a terminal company owned by all roads. The industry would be on the own line of each of the railroads.[2] There is thus created in South Boston a neutral industrial location for whose traffic all Boston roads would compete. It would have the advantages of the location of the Bush Terminal Company in Brooklyn.

Basis for Bush Terminal development. Here is the basis upon which a Boston Bush could build. Here he would have land reasonably cheap, within ten minutes' walk from South Station. He would have convenient access to the entire labor market of South

[1] This is not so true of inbound service on competitive business originating, for instance, in the West. The New Haven's or Boston & Maine's connections do get hold of a considerable amount of this traffic and send it in on New Haven or Boston & Maine rails to Boston, the carrying route here absorbing the switching charges of the Boston & Albany.

[2] It will also be desirable to include, in the lease to the three roads jointly, the tracks leading from the Commonwealth Pier storage yard to Commonwealth Piers 5 and 6, and other piers to be constructed in South Boston. Each railroad would then similarly control its service to and from the Commonwealth Pier group.

Boston, Boston and its southern suburbs. He would have bridges for teaming across Fort Point Channel[1] to the business city. Whoever put up a loft building for light manufacturing and warehousing on the tracks at South Boston could, like Bush, offer from his shipping platform direct car-loading to destination, or direct loading into a car for a transfer point of the carrying railroad. Most teaming of L.C.L. could be eliminated, as at the Bush Terminal. If there were teaming, it would be to an adjacent freight station of one of the three roads.[2] One dray could carry freight for all three roads. The Boston rate would apply from the shipping platform of such a Boston Bush Terminal. Instead of having to float to all railroads, as Bush must, the South Boston terminal would have direct rail connection with one, the New Haven; and this would keep the other roads rendering splendid service. Both for C.L. and L.C.L. shipments the man located at South Boston would have an unequaled situation.

Fits into "Boom Boston" movement. The newest and one of the best things in Boston is the movement for the industrial development and expansion of the city. In South Boston there would be an ideal field for beginning this development and expansion. What makes an industrial location? It is, primarily, nearness to labor, nearness to the railroad freight stations, adequate connection with all railroads for carload shipments, moderate taxes. This development would

[1] Fort Point Channel separates South Boston from Boston. It is clearly shown in the panorama view of the South Boston terminals, opposite page 36.

[2] We ought also not to disregard the advantage to Commonwealth Pier, and future piers at South Boston, of having within a stone's throw freight stations of each of the roads, to and from which to dray L.C.L. import and export freight.

be offered to land owned by the State itself. The State would prosper from the jump in land values brought about by giving this choice land a unique transportation situation. Here is no need for "excess condemnation" or any other means to get into public hands land which will profit from public improvements. The land is there, waiting to be used.[1]

C.L. between South Boston and various piers. The charges payable by an industry located upon the new South Boston tracks, in reaching, with carloads, expeditiously, the three sets of steamship piers, would be as follows:

1. Between Factory and South Boston Piers

Switching	1. ¢
Loading or unloading	1. ¢
To Commonwealth, for use of pier	0.5¢
	2.5¢

2. Between Factory and Charlestown Piers

Switching	1. ¢
Carfloating	0.5¢
To Boston & Maine, for switching, unloading and use of pier	2. ¢
	3.5¢

3. Between Factory and East Boston Piers

Switching	1. ¢
Carfloating	0.5¢
To Boston & Albany, for switching, unloading and use of pier	2. ¢
	3.5¢

1 The Canton Land Company, which has property in a distant suburb of Baltimore, far down the Bay, has a successful development similar to the one urged here. The Company operates its own industrial tracks and has arrangements for interchange by switching with the Baltimore & Ohio and Pennsylvania, by carfloat with the Western Maryland. But it is a suburban location in no way comparable with that at South Boston.

Difficulty of having ocean terminals self-supporting. It is proper to point out an incidental advantage to the State and its representatives, the Board of Port Directors, which will arise from the increased availability of the State's industrial area at South Boston. There is no immediate prospect that port improvements in Boston will become self-supporting alone from charges that can be levied on carriers or goods involved in the traffic here interchanged. This is due partly to the competition of other ports and partly to the policy, which the Boston railroads enforce at their piers, of making no charges on steamships using them.

Area of State land at South Boston. The Port Directors are not dependent alone upon income from the piers they build and lease or operate. They own 6,400,000 square feet of South Boston land with a value now of somewhere between $8,000,000 and $13,000,000. The most of the land lies unused, and the income from it is small. If this land were availed of for industrial development, the income would be large. If the land were initially leased (on long term rentals, revised every thirty years) at merely 6% on the lower above estimated value, the annual return would be $480,000. It will not all be leased at once, but the rental value will be far above $8,000,000 when the land is neutralized and connected up with all transportation systems in Boston. An annual income of $480,000 would make up the deficit in the annual budget of the Port Directors, and would make the port improvements self-supporting, including interest and sinking fund on at least all future bonds to be issued.

San Francisco port self-supporting from land rentals. A model for port financing is to be found in San Francisco, the best American example of a

publicly owned port. At San Francisco the title to the shore line has remained vested in the State. For a considerable distance, the State has established a bulkhead line outside the original shore line and filled the area between the old and the new shores. This area is then divided into "seawall lots" which are leased to the highest bidder. This "seawall reclamation" has recovered twenty-five acres[1] from the sea, and these twenty-five acres returned to the State Harbor Board, in rentals, nearly $100,000 in revenue annually during the two year period ending July 1, 1912.[2] All improvements in the port of San Francisco have always been made out of current revenue, and halted until current revenue was available, until in 1909 a $9,000,000 bond issue was approved by the people of the State, interest and amortization payable out of harbor revenue. The port of San Francisco is self-supporting as a real estate and pier proposition jointly. Does not the same way lie open to Boston?

TOTAL EXPENDITURES AND RECEIPTS OF THE SAN FRANCISCO HARBOR BOARD FROM 1865 TO JUNE 30, 1912[3]

Expenditures	$34,328,505
Receipts	34,212,320

State land at East Boston also will help. Nor need the advantage of the carfloat belt service be limited alone to this South Boston land of the Commonwealth. It is proposed to create a great area of new land off Jeffries Point, East Boston, by filling the State-owned

[1] There are about 150 acres at South Boston and the Commonwealth is reclaiming 20 acres more in connection with the construction of the dry dock.

[2] Secretary Merle of the San Francisco State Board of Harbor Commissioners, in the Pacific Marine Review of November, 1913.

[3] 1912 Biennial Report of the Harbor Board.

flats there. No one thing will so help put that area into use and give it value as adequate connection with the entire transportation system of Boston. The South Boston industries will have direct connection with the New Haven and float to the Boston & Maine and Boston & Albany. Industries on the land at East Boston can have direct connection with the Boston & Albany, float to the Boston & Maine and the New Haven. At first, of course, the float service from East Boston could not be so frequent as that at South Boston, where the industrial cars would be consolidated with a heavy movement between the New Haven rails and the Boston & Maine and Boston & Albany yards or piers, and between the New Haven yard or piers and the Boston & Maine and Boston & Albany rails.

Harbor waters as belt line in New York. With the institution of these combined float-and-rail services of the Boston & Albany and Boston & Maine into South Boston, the "free waters" of the harbor would take on a new significance.

Boston has never known what the real meaning of "a waterfront location" is. In a vague way it is realized that it is a good thing to be on the harbor. No one knows what it really means until he sees the use made of the New York harbor as an industrial and detour belt line. Nothing has so greatly contributed to the growth of New York as free lighterage—free delivery anywhere within extensive lighterage limits—forced upon the New York railroads by the competition of the old Erie Canal barges, which could equally well deliver anywhere on either side of the Hudson, East or Harlem rivers. This opened and has held open the opportunity for industrial development anywhere on the New Jersey, Staten Island,

Brooklyn, Bronx and Manhattan shores, within lighterage limits in some places 26 miles apart.

Service afforded C.L. shippers. All a New York industry has had to do has been to build a wooden wharf, and, as often as it had a carload of freight to ship or receive, order any New York railroad to take or deliver that carload, by one of its lighters, at that wharf. The harbor waters were a belt line, and so they remain. Industries making and receiving carload shipments are satisfied with such waterfront locations. These heavy industries long ago deserted New York and its high land values for New Jersey and particularly Brooklyn, because of its good labor market.

Bush extends these advantages to L.C.L. However, the manufacturers and warehousers of high class goods that move in less-than-carload lots would not leave the city. They needed to be adjacent to the freight stations of the railroads on the West Side waterfront, where each road daily loads a hundred cars of L.C.L. through to destination. Mr. Bush met the situation and is drawing even those people away from Manhattan. He has invited them to consolidate themselves in his huge loft buildings. That consolidates their L.C.L. shipments, all of which he handles for them. He is thus enabled to obtain the minimum of L.C.L. tonnage and to load many daily through cars to important interior points. In any case, Bush loads a daily straight car of L.C.L. to each New York railroad's transfer station on the Jersey waterfront or just inland from it. These cars may be loaded by Bush up to twelve o'clock noon; by twelve o'clock night they have, at the transfer station, been put into

through cars to destination and are on their way to the interior.

This is the essence of the Bush Terminal.[1] It was made possible by the policy of the New York railroads to float cars to Bush's float bridges free of charge, and deliver them alongside the loft building where he wanted them; or rather, they pay Bush a compensation reimbursing him for performing this service with his own rolling and floating stock. The New York rate delivers the car alongside the manufacturer's shipping platform exactly as if he had his buildings in Jersey City. The L.C.L. manufacturer has no drayage expense or delays. He is, as it were, located in a joint freight station of all roads serving New York.

Social significance of Bush Terminal. The success of Bush has brought the New York Dock Company and at least two other concerns to imitate him; the movement has only begun. We may expect to see the decentralization of high grade manufacturing and warehousing in Greater New York, exactly as we have seen the decentralization of the heavy industries. This will mean the removal of operations in dark and unsanitary quarters to commodious loft buildings. The heart of a city is no place for manual laborers to work. The land is too valuable. No one can afford to give them enough room. The interior city is the place for mercantile and financial business. But light-manufacturing industries are held here because of the impossibility of finding exterior situations accessible to labor, and with convenient freight stations of all railroads, which were all built to reach this central section and which thence diverge, so that an exterior

[1] Discussion of the Bush Terminal Company's situation and operations, except as pertains to rail carriers, is purposely avoided.

situation is as a rule dependent upon connection with a single road.

Same way open to Boston. Mr. Bush has shown us how to give an exterior situation the transportation advantages of an interior one. There is reason to believe that the way can be paved at South Boston, not only for the settling of heavy industries, but for the gradual, voluntary removal of light-manufacturing from the congested area in Boston to the air and sunlight of roomy loft buildings in a situation that will have the advantages of both exterior and interior locations. The removal will be voluntary because nothing will be lost in transportation service or labor supply; much would be gained in ability to get more space for less money, in lower insurance, in avoidance of cartage.

Carfloat belt serves all purposes. The carfloat belt, designed as a waterfront belt, to improve and complete the connections between the railroads and ocean carriers, would also be an interchange belt of considerable worth, and an industrial belt which may be utilized to great advantage for the industrial development of Boston.

Public ownership of entire waterfront. It is now proper to point out how the waterfront of Boston, engaged in accommodating oversea lines, could be acquired and operated by the Commonwealth, possibly on a self-supporting basis and with no more burden upon the rail carriers than they now assume in the case of foreign traffic handled over their own terminals. Plan C (on page 268) shows the present terminal situation at Boston, reinforced by the proposed new carfloating routes between South Boston and East Boston, South Boston and Charlestown.

Purchasing all piers and the equivalent of a belt line. The Commonwealth could purchase, at a fair valuation, the New Haven's piers at South Boston. The State's car storage yard, now being built on State land at South Boston, would be sufficient to serve all piers in the South Boston group. The Commonwealth could purchase the East Boston piers of the Boston & Albany and the car storage yard serving those piers. The State could contract for running rights on the Grand Junction Railroad between the Boston & Maine's East Somerville yard—where Boston & Maine and Boston & Albany intersect—and the storage yards of the East Boston piers. They could purchase Hoosac Docks and Mystic Wharf, and running rights between them and the East Somerville yard; also the storage trackage in that yard now engaged in handling foreign traffic.

Operation. The Commonwealth would then own the four export terminals of the port and a belt line connecting each road with each of these terminals. An export car could be taken from any road and be set on any pier, or an empty car set from any road upon any pier, to handle import traffic. Cars would be taken from the Boston & Maine and Boston & Albany at East Somerville yard and delivered to Hoosac or Mystic via the trackage on which running rights would have been acquired. Cars would be taken to East Boston via the Grand Junction. Cars for South Boston would be taken from the East Somerville storage tracks to the new float bridge at Mystic Wharf and floated to South Boston. Similarly, cars would be accepted from the New Haven at the South Boston storage yard of the State. The cars for South Boston piers would be switched in direct. Those for East Boston would

be floated across. Those for Hoosac or Mystic would be floated to the Mystic Wharf float bridge and so delivered.

Railroads finance Boston oversea terminals. It is frequently said that piers at Boston are free. There is no such thing as free piers. Somebody pays for their construction, maintenance and operation. As a result of conditions already described, the steamship lines in Boston do not pay for the piers. The railroads do. If the switching of export and import freight and the operation of piers were to be performed by the Commonwealth, the railroads could afford to pay the Commonwealth what the terminals now cost the roads in the shape of

Interest on investment, depreciation and taxes.
Maintenance.
Operating costs.

Railroad's terminal cost paid to Commonwealth. It should be possible to ascertain these total costs for each road for a period of years and divide into it the tonnage of exports and imports handled over the road's terminal during the period in question. The result would be the contribution per ton which Boston railroads have found it worth while to make for the sake of maintaining in Boston oversea terminals for the steamship lines. There is no reason why the roads should not make the same contribution per ton towards the maintenance of water terminals owned and operated by the State. While no detailed figures are at hand, indications are that oversea traffic now costs the Boston roads about 3¢ per 100 pounds, 60¢ per ton for terminal handling.

Should make State-owned waterfront self-supporting. That is, it now costs the roads about 3¢ per 100 pounds to make the oversea terminals of the port self-supporting. If these terminals were acquired by the State at a fair valuation, it would seem as if 3¢ per 100 pounds paid by the railroads might make the terminals self-supporting, if managed by the State. The State would have lower fixed charges upon the investment, in that the State could get its money 2% cheaper than the railroads and would have no taxes to pay.[1] But the State would certainly operate more expensively than the railroads and would render, in certain cases, more extensive and more expensive terminal services than the railroads now give. The 3¢ would surely be no more than enough.

Experiment should be postponed. However, the venture is a large one, involving the expenditure of probably $15,000,000 to $20,000,000. It would require State operation on a scale unknown in any port in this country. It should not be undertaken unless it proves impracticable to have a terminal situation of substantial fairness under present conditions of mixed ownership of the waterfront. The larger part which the State-owned piers are playing in the oversea business of the port will give the Commonwealth opportunity to have increased weight in the shaping of terminal practices.

[1] The loss of taxes on oversea terminals of Boston railroads would be Boston's annual contribution to the cost of acquiring the waterfront for the public.

CHAPTER XVII

COMMONWEALTH PIER AS A JOINT PASSENGER TERMINAL

Of equal importance with the transfer of freight between land and water carriers is the provision made for the transfer of passengers.

Why Boston must seek passengers. There are several reasons why Boston should pay particular attention to this matter. Passengers are much more sensitive than freight to every inconvenience experienced in transfer. Boston's advantage in its situation near Europe is neutralized, so far as western freight is concerned, by the action of differential (lower) inland rates accorded to Baltimore, Philadelphia, Newport News, Portland, St. John and Montreal. The strongest effort must be made to provide steamship lines at Boston with passenger earnings to compensate them for the lower freight earnings which the inland differentials impose.

The opportunity. Finally, it is possible here, as perhaps nowhere else on the North Atlantic coast, to provide for direct interchange of passengers, at least steerage passengers, between cars and vessels. This, however, is not the method at present followed. At the present time, every Boston transatlantic pier handling a passenger steamer has its own layout, where immigrants may be examined and admitted to the country. If rejected or detained for further

examination, they are sent to the present inadequate detention station on the end of Long Wharf. If there are enough admitted immigrants destined to points west of the Hudson River to justify making up a passenger train at the steamer pier, such a train is made up. However, it is not always that this occurs. Half the time the westbound immigrants, like those for New England, are carted to the railroad stations and there put into their cars. Similarly, through trains are run from the West to a steamer pier when there are enough western third-class passengers sailing by a Boston steamer to justify a special train. This has occurred, however, only in connection with Christmas sailings, particularly those of the Cunard Line, for which trains of Scandinavian third-class passengers are run from the Northwest. Most third-class travelers destined for Boston sailings come into Boston passenger stations on the regular Boston trains, and find their own way to the piers.

Practice at Ellis Island. It is instructive to compare this situation with that at New York. In New York no immigrants are examined at the steamer pier. Every steamship loads its immigrants into barges which carry them to Ellis Island, the United States Immigration Station. It is thus a joint immigration station for all lines. There are eight trunk lines operating west from Jersey City—the Pennsylvania, West Shore, Delaware, Lackawanna & Western, Lehigh Valley, Erie, Ontario & Western, Baltimore & Ohio, Jersey Central. Successively, each of these roads is assigned a day on which it has the transportation of all westbound immigrants from Ellis Island. As fast as a group of immigrants is examined and admitted, they are taken to the joint railroad

waiting room at Ellis Island, where they exchange their railroad orders for railroad tickets. Then, as soon as a barge load of them has accumulated, they are floated up to the Jersey City terminal of the road of the day.[1] By evening enough immigrants have been brought to the Jersey railroad station to make up one or more direct immigrant trains. A daily special immigrant train to the West is made possible by the concentration upon that train of all westbound immigrants arriving in New York that day.

Concentrated examination. This convenience and economy for railroad and steamship lines in the handling of immigrants is of course a by-product of the establishment of the Immigration Station at Ellis Island; it is not the object which Ellis Island was designed to serve. Ellis Island was built in order to concentrate at one point the Government's handling of all New York immigrants. They are brought to the immigration officers. The latter do not, as in Boston and Philadelphia, disperse themselves over all passenger steamship piers in the port and examine the immigrants where the vessels dock.

It is realized that as the immigrant business of Philadelphia and Boston grows, it will be necessary to have an immigration station at each of these ports, where will be concentrated the examination and detention of all immigrants. Such stations are now slowly under way. The Ellis Island station consists of four parts—offices, examination quarters, detention quarters and hospital quarters. Hospital quarters are not planned for the Boston or Philadelphia stations,

[1] This barging *from* Ellis Island costs the railroads an average of 10¢ per passenger. It is fair to assume that the cost to the steamship companies of barging passengers to the island is the same.

which will continue to send cases of sickness to city hospitals.

The Philadelphia station. At Philadelphia $100,000 has been spent by the Government in acquiring a site for an immigration station. This sum bought an estate, including a house, in Gloucester, N. J. The residence is used as an administration building. One hundred thousand dollars more has been spent on the construction of a detention station; $100,000 more has gone to construct a wharf which will contain examination rooms for immigrants, who must all be barged there by the steamship companies. An appropriation of $55,000 is still unspent; $23,000 more has been asked of Congress. This $88,000 will suffice to shed the immigrant wharf. There is no present intention of applying for a government appropriation for the construction of a hospital. In 1914 it seems likely that within two years the Philadelphia Immigrant Station will be in complete operation. It is many years since the first active steps were taken towards its building.

The Boston station. In the meantime, no constructive step has been taken at Boston. For $30,000 a site was acquired at East Boston. Local interests were not satisfied with this location, so the Government was persuaded to exchange it for another site, paying about $35,000 additional therefor. Plans were approved by the Treasury Department for the construction of an immigration station on the site chosen, on a total appropriation of $250,000 secured from Congress. It was then discovered that the appropriation was insufficient to carry out the plans. Massachusetts congressmen have asked an additional appropriation, bringing the total up to $375,000. Judging from the many years it took to get the new Philadelphia immigration

quarters, whose completion is still probably two years away, viewing the method in which the rebuilding of the Boston Customs House has proceeded, and recalling the manner in which government contracts are usually carried out, it is not easy to imagine an early completion of the needed Boston Immigration Station.

Suggested station on Commonwealth Pier. It is here suggested that such an immigration station be fitted up for the United States Government on a part of the second floor of Commonwealth Pier.[1] There are three second floor spaces—the second floors of the middle and of the two outer sheds. The second floor of the middle shed is connected by a viaduct with Summer Street, which crosses the South Boston freight yards at an elevation.[2] This middle shed has been fitted up with accommodations for the customs examination of first- and second-class passengers, and with large examination rooms for the third-class passengers. These examination rooms are large enough to take care of all immigrant passengers arriving in Boston.

What a station consists of. The Boston Immigration Station should consist of office rooms, detention quarters and examination quarters. Whether now proposed by the Boston immigration authorities or not, centralized examination of all immigrants will be necessary as soon as the Boston immigrant movement advances materially beyond its present proportions. The Philadelphia station recognizes this necessity and

1 Commonwealth Pier is 1,200 feet long and 400 feet wide. It is covered by three two-story concrete sheds, so connected as to form practically one continuous shed. The location of Commonwealth Pier is shown on Plan B, page 256.

2 Summer Street crossing South Boston at an elevation is seen in the panorama of South Boston terminals, opposite page 36.

provides for it in its immigration station; the Boston station should do the same. Examination rooms already exist at Commonwealth Pier. It would be a simple matter to fit up offices and detention rooms on a part of the second floor of one of the outer sheds. The immigrants detained would pass from the examination rooms directly across a bridge[1] to the detention station. The fact that the sheds are separate provides for complete isolation of detention quarters from the rest of the pier. No sick cases will ever be harbored in these detention quarters. It is well known that the third-class examination rooms are separated from the accommodations for first- and second-class passengers. The latter would have no cause to know that there was a detention station on one of the other sheds of the pier; and not the slightest cause to fear it if they did know. Fitting up offices and detention quarters to please the immigration service would involve only the laying of floors and partitions, perhaps the provision of extra windows, and an extension of the present water and lighting connections and heating plant already serving the second floor of the middle shed.

It was once proposed that an immigration station should be constructed for the Government on the second floor of the Leyland Line Pier in the Boston & Albany terminals at East Boston. The proposition failed because of the unwillingness of the Government to lease such quarters from a private railroad company. No such difficulty would arise in devising a proper form of co-operation between the State of Massachusetts and the Federal Government.

Advantages of plan. There would be several desir-

[1] Connecting the second stories of the three pier sheds.

able results of such an arrangement. The Government would be provided with roomy quarters, all on one floor, far more convenient to operate than quarters that can be constructed on the very narrow piece of land acquired at East Boston. The location at South Boston is one much more accessible to the immigration officials. Within a few months these quarters at South Boston can be provided. The proposed immigration station should largely reduce the present heavy expense entailed by a dispersed immigration service. The saving, instead of beginning five or ten years from now, could begin at once. The Port Directors would receive a substantial additional revenue from Commonwealth Pier. The large space on present piers now occupied by this multiplicity of examination and waiting rooms would become available for freight or storage purposes.

Convenience of location. Assuming that conditions existing before the war will be resumed when it is over, three of the principal immigrant lines in the port will then be berthed at Commonwealth Pier—the Hamburg-American, the White Star-Liverpool, and the White Star-Mediterranean services. No other one location for an immigrant station will serve directly so many arriving immigrants as a location on Commonwealth Pier. Consolidate there the immigrants from other lines and they are in the most accessible location in the port of Boston, both with regard to direct loading of immigrant trains for the West, and with regard to carting the immigrants to the Boston railroad stations. Immigrants destined for New England will continue to be so handled. The location chosen at East Boston is not one which can have direct railroad connection,

for it is east of the Boston, Revere Beach & Lynn Railroad.[1]

Attractions for immigrants. From the Commonwealth Pier the New England immigrants would be carted over the viaduct to Summer Street and so to South or North Station. The westbound immigrants would descend the stairs to the train waiting on the first floor of the middle shed. Though there might not every day be enough immigrants to form a western train, one could be made up very frequently, especially in the summer months, when the tide of immigration is running heavy. The New Haven, Boston & Albany and Boston & Maine could alternate in running trains to the West. This is what they have already been doing in the case of immigrants of the Hamburg-American Line landing at Commonwealth Pier; each road has assigned to it every third boat, and, for that boat, runs a through train to the West.

Philadelphia's mistake. Philadelphia has made the great mistake of marooning its immigration station three miles down the Delaware River, on the New Jersey side. Immigrants must be barged down there and then barged back again, in order to get to the railroad stations and be on their way to the interior. The immigrant appreciates convenience just as any one else does. He writes back home of the comfort with which he is at Boston transferred from vessel to car. Later, when returning home for the winter, he sails from Boston. When he buys prepaid tickets for the family left on the other side, he buys them on a steamer sailing to Boston. No one thing can do more to interest steamship lines in this port than to make

[1] This road terminates at grade at a ferry house to the east of the Boston & Albany. See Plan B, page 256.

it attractive to third-class travelers. The money in the North Atlantic trade is made in carrying immigrants.

The pier a landing stage. There is at the outer end of Commonwealth Pier a berth 400 feet long, available for the use of any steamship that may want to land its passengers there. All Boston transatlantic passenger lines not berthing at Commonwealth Pier should be invited to stop at this end berth for the hour necessary to land or take on passengers of all classes, and mails, in- and out-bound. The berth would thus serve as a union passenger station, or landing stage, such as the Prince's Landing Stage at Liverpool or the Landing Stage at Tillbury Docks, London, each used jointly by all steamship lines.

Advantages for steamship lines. There are reasons why the Boston lines not now using Commonwealth Pier might be glad to take advantage of such an offer. The berth is so situated that it could be reached with ease and with no danger, involving only a slight change in the vessel's course, inward or outward. To stop there inbound would save the vessel the cost of barging or carting immigrants to the immigration station at Commonwealth Pier, and save the immigrants the inconvenience of being so transferred. The steamship line would have thrown open to it the splendid, accessible first- and second-class passenger accommodations of Commonwealth Pier. If all Boston lines will agree to use this as a passenger terminal, then, in the joint advertising which should be undertaken, the simplest directions can be issued for prospective travelers, for all would sail to or from Commonwealth Pier. A landing stage, such as this pier will be, would be an

attraction towards Boston whose effect would be countrywide.

Practicability of plan. It does not seem impracticable for even the Cunard boats to make the call. Inbound, these boats must turn at right angles before entering their berth at East Boston. It would seem to be little more difficult to make this turn after lying for an hour along the end of Commonwealth Pier than to make it upon entering directly from the sea. In the crowded waters of the Hudson River at New York, with its heavy currents, steamers of 10,000 to 11,000 tons, like the "Creole" of the Southern Pacific's New Orleans service, and the "Cristobal" of the Panama Canal Steamship Company, use different piers for inward and outward cargo. In either case the shift involves taking these vessels out into the Hudson River and towing them to the outward pier. The "Cristobal," 11,000 tons, discharges at Pier 52 and proceeds to Pier 67 to load. It would not seem an insuperable difficulty to move a vessel of any size across the quiet waters of Boston harbor.

Pullman service to pier. Prior to the war the Hamburg-American Line announced that when the number of passengers justified so doing it would run a Pullman from Chicago and one on the midnight train from New York, to be switched at Boston to Commonwealth Pier and connect with the Hamburg-American sailings. The Boston & Albany and New Haven roads are perfectly willing to put on a Pullman either eastbound or westbound, at any time, if a minimum number of passengers present themselves. If all lines were using Commonwealth Pier it would be simple to arrange to have all first- and second-class passengers from New York or the West, sailing from Boston on

a single day, given the opportunity of using Pullmans run from New York and the West to the ship's side on that day. That is, there would be Port of Boston Pullmans run on the important sailing days of the year. It is not impossible that the plan would work so well that the steamship lines would arrange to have their sailings more frequently fall on the same day. Similarly westbound; by wireless the first- and second-class passengers on all lines arriving on a given day could be notified of the opportunity of taking Pullmans for New York and the West at the ship's side. At the pier they would find awaiting them enough cars to accommodate them. These cars would be switched to South Station during the evening, and would be put into the Boston & Albany evening train for the West, or the New Haven's midnight train for New York. A first-class restaurant upon the pier would be necessary to the success of this plan, but one is sure to be provided if the passenger business of the port is consolidated there, to serve travelers and their friends.

Unique features of plan. The convenience of such arrangements can be understood by any one who has traveled abroad and has debarked at Liverpool, Tillbury, Southampton, Cuxhaven or Bremerhaven, directly into a train for the interior. The convenience would appeal particularly to elderly persons, women traveling alone or persons traveling with families. For all these people, in addition to the comfort offered them, there would be the not inconsiderable saving of the cost of being transferred from railroad station to ship. Manhattan, located across the river from the railroads, can never have such facilities for contact between passenger car and ship. For first-and second-class travelers, this contact is now made in this country

only by the Canadian Pacific Railroad at Quebec, where Canadian Pacific trains, one of them a transcontinental, meet the "Empress" steamers of the Canadian Pacific's Liverpool service.[1]

[1] If a universal use by the Boston lines of Commonwealth Pier as a landing stage came to pass, it would probably be necessary to enlarge the present first- and second-class passenger accommodations on the second floor of the middle shed, extending them to include a small part of the second floor of the outer shed not occupied by the Immigration Station. The rest of this second floor should be devoted to another purpose.

Commonwealth Pier is a terminal, not a pier in the ordinary sense of the word. After the war, there will be three transatlantic lines discharging cargo upon it: the Hamburg-American Line, the White Star from Liverpool, the White Star from the Mediterranean. No terminal is complete without a warehouse to store free or bonded goods which are not destined for immediate shipment inland. No other terminal is without such a warehouse; both the Boston & Albany and Boston & Maine roads operate warehouses at East Boston and Charlestown respectively.

The second story of an outer shed of Commonwealth Pier contains 100,000 square feet of floor space; enough, if divided into bonded and free stores, to amply care for warehoused cargo of the three lines. The establishment of such a free and bonded warehouse, caring for stored import freight, would be another step towards making the Pier self-supporting, in addition to being a convenience to the steamship lines and their shippers. The East Boston warehouse of the Boston & Albany is a separate building of permanent fireproof construction. Its accounts are kept separately, and it is charged with a loading and switching charge on all freight taken to it from the Boston & Albany Piers. Yet it is fairly profitable. The warehouse on Commonwealth Pier would be instituted by merely putting up partitions in a fireproof building already constructed and supplied with water and lighting connections, and a heating plant capable of expansion. There will be no loading or switching charge to absorb to get goods from the Pier to the warehouse; these goods would come up in freight elevators already constructed, elevators whose prospective use otherwise would not be easy to describe. Therefore, the Commonwealth Pier warehouse would be a profitable thing. The State should not operate a warehouse, but should re-fit the space for such quarters and lease them for operation. The initial storage and profits of the business would be increased as more oversea piers are built at South Boston, the stored import freight from these piers to be switched over to the warehouse at Commonwealth Pier.

B

CO-ORDINATING RAIL AND COASTWISE CARRIERS

CHAPTER XVIII

THE COASTWISE WATERFRONT AT BOSTON

Rail and coastwise carriers. In all this plan for a waterfront belt, provided by carfloat service, it will be noted that nothing has been said of co-ordinating the Boston railroads with the Boston coastwise lines that dock along Atlantic Avenue. This is perhaps the hardest operating problem that confronts Boston, and is one that urgently needs to be met.

Atlantic Avenue problem. The coastwise lines are worth more to New England and Boston than the foreign lines. The coasters are the water carriers to domestic markets and their importance, compared with foreign lines, is indicated by the relative importance of domestic and foreign markets. The latter offer opportunities for great expansion and growth, but, for obvious reasons, foreign will never equal domestic trade. There is no more important problem than to improve the unsuitable conditions under which the domestic water carriers do business. At present it would be a physical impossibility for a new coastwise line to be accommodated on Atlantic Avenue, or for a present line to double its services. Present services are carried on at high cost of handling freight or transferring it to railroads; and at great inconvenience to local shippers and consignees.

Atlantic Avenue and the distributors. The Atlantic Avenue waterfront is served by the Union Freight

Railroad, a belt line on the marginal street which, in the manner already described, connects with each railroad, receives its cars and sets them on any siding of the Union Freight for a uniform switch-charge of 1¢ per 100 pounds, 20¢ per ton, minimum $3.00 per car. A large part of the Union Freight's business is to and from industrial or commercial sidings along its route. A concern located adjacent to such a siding can, by payment of 1¢ per 100 pounds, in addition[1] to the Boston rate, exchange carloads with any local or competitive point on or via any of the three railroad lines. This freight, if it had come in to the team tracks or freight house of any of the roads, would have had to be teamed to the Atlantic Avenue concern at a cost of at least 60¢ per ton.

The Atlantic Avenue wholesaler or commission merchant, therefore, has the advantage of an interior location in the heart of the jobbing district, the value of the situation being enhanced by a switching service which cuts the man's cartage bill in three. There can be no doubt that this condition greatly enhances the value of commercial situations along the Union Freight. One of the largest items moved is provisions for the market dealers located back of Atlantic Avenue. The 20¢ per ton switching charge has also drawn here many firms receiving or jobbing beer, pickles, oils, paints, and a hundred commodities distributed to the grocery, meat and other wholesalers in this district. These Atlantic Avenue distributors have not remained upon the land side of the waterfront street, but they have overflowed upon the piers themselves.

Type of Atlantic Avenue piers. A peculiarity of

[1] The 1¢ of the Union Freight is not absorbed into local rates to or from Boston.

the Atlantic Avenue piers is that many of them are so wide that they include blocks of storage warehouses, with encircling roadways, the pier sheds being incidental fringes to the entire pier. This construction can be explained historically. Such a pier was the terminal of the Boston merchant adventurer of 1800, who brought back, discharged and stored here tea, silk, spices, ivory and all the rich treasure of the Indies. Or he brought here West Indian sugar to be manufactured into rum, which was shipped—among other places—to the west coast of Africa to exchange for slaves.

A souvenir of early days. The merchant adventurer is gone. But there are reminders that he once existed. One is the frequent newspaper articles bemoaning the "good old times," when Boston merchants sailed all over the globe and Boston was a great maritime power. One is the continuance of West African taste for Boston rum, whose export to those parts still flourishes, moving from Boston to the west coast via transhipment at Liverpool. A third souvenir is the persistence of the type of pier mentioned.

Inadequacy of piers for shipping purposes. Jobbers, commission men and light manufacturing concerns have settled in the old warehouses or their successors. This has given these pier terminals a high value, greater than that of piers anywhere where commercial and industrial enterprises have been held off the waterfront. In other ports they are usually so held off, on the ground that they can do their business on land, while ships must do theirs on the water. The original piers were of course built when ships were small, so slips between them were made narrow. Present piers are extensions of substan-

tially the lines of the old piers, so the water space between them is so narrow as to make it inconvenient, sometimes impossible, to berth two ships at the same time at adjacent sides of adjacent piers. The narrowness of the slip similarly interferes with the movement of lighters to interchange between the coastwise steamers and the ocean steamers or railroad lighterage sheds. The extreme irregularity of these piers, which run toward all points of the compass, creates angles and impasses which further limit their ability to berth steamers.

Union Freight Railroad serving piers. Perhaps half the Atlantic Avenue piers have on them spurs from the Union Freight. In some cases these spurs do not reach to the coastwise steamer's pier shed at the outer end of the pier, but only half way there, so that the freight must be drayed a short distance and rehandled into the car. Even in cases where a spur does come alongside a pier shed, it is a single track. Only a few cars can be set upon it.

Limitations to switching service. It is only between 12 and 5 a.m. that the Union Freight makes connection with the New Haven at the South and the Boston & Maine at the North. All its cars for a steamship line are received at that time. If the Union Freight has for a coastwise line more cars than can be set alongside the pier shed at one time, half may be set and the other half stored in the Gas House Lot, a Union Freight storage property adjacent to North End Park, near North Station. When the coastwise line has finished unloading the first string of loaded cars, these as empties may be switched back to the storage lot, and the other loaded cars set for the steamer to unload. The Union Freight does not advertise to do

any switching by day. When it does perform movements like the above they are a detriment to teaming on Atlantic Avenue. They are similarly a detriment to all teaming in the pier driveway on which the tracks are laid and over which the car must be switched. The mere standing of cars in these limited roadways is a nuisance.

Union Freight connects with railroads only at night. Cars loaded at the coastwise piers today will not be switched to connection with a Boston road until an early hour tomorrow morning, and cannot do better than catch the evening freight trains of the Boston railroads, leaving tomorrow night. A car despatched for Boston on tonight's train from Worcester reaches here tomorrow morning, too late for the Union Freight switch. The car is not switched until tomorrow night, and not until day after tomorrow morning is it in position to be unloaded by the steamship line. The steamer line will probably order the car's contents drayed tomorrow morning to the boat from the car at the freight station of the railroad.

1¢ per 100 pounds, but 30,000 pounds minimum. Moreover, the charge of the Union Freight is 1¢ per 100 pounds, minimum 30,000 pounds; the minimum charge is $3.00 per car. Suppose a carload of 6,000 pounds (enough to make a full car on any Boston road) is shipped to Boston in care of the Clyde Line. It will cost $3.00 to have the Union Freight slowly switch the car, or 5¢ per 100 pounds. Moreover, after it arrives the steamship line must unload it. It is far cheaper to order the carload drayed at 4¢ per 100 pounds, which sets the freight upon the pier.

All these conditions impair the flexibility in the use

of the Union Freight as a connection, and makes it impossible for it to render satisfactory service in the interchange between Boston rail and coastwise carriers.

Some coastwise lines not reached by Union Freight. Many of the coastwise lines have no Union Freight connection with their piers. If the rail-and-water routes they represent are to compete with all-rail routes, there must be rapid transfer between rail-and-water carriers at Boston. Therefore these water lines are put to the expense, in their tariffs, of providing for transfer by dray between railroad station and coastwise pier, at a cost of rarely 3¢, usually 4¢ to 10¢ per 100 pounds (60¢ to 80¢ to $2.00 per ton). This cost is borne not only by L.C.L. but by C.L. freight.[1]

Large volume of teaming to and from railroads. Taking this interchange between rail and coastwise lines as a whole, and considering all railroads and all coastwise lines, L.C.L. always and C.L. package freight to a large extent are interchanged between the two carriers by dray, for the reasons given. The effect of this draying is to increase the cost of the transfer, limit the profits of the coastwise lines which have to absorb that cost, and decrease their radius of action in the interior. If the transfer is part of a combination rate, instead of being absorbed, the burden falls on the shipper.

Union Freight indispensable until substitute found. Yet, whatever are the limitations of the Union Freight, it could by no means be dispensed with unless an efficient substitute were found for the work it does. It handles a large volume of carload freight for such

[1] As is recalled, these terms mean *carload* and *less-than-carload.*

important lines as the Clyde and the Savannah services.[1]

An efficient belt on Atlantic Avenue impossible. The coastwise lines claim that they must be situated along Atlantic Avenue, no matter what the cost. Half their freight is local and not through water-and-rail freight, from or beyond Boston. The coastwise carriers feel they must be immediately adjacent to the shippers and receivers located directly on Atlantic Avenue, or within close reach of it. Within a few stones' throw of the Avenue are the wool receivers, the jobbers of woolen and cotton piece goods, groceries and hardware, and agencies of the manufacturers of fine machinery, stoves, furniture, etc. What is no doubt desirable would be to provide these coastwise piers with a waterfront belt, which would set cars from all railroads upon wide, newly arranged piers; which would be capable of operation day and night, and would afford between all railroads and all coastwise piers, at least for C.L. freight, the same rapid and flexible interchange which can be arranged in the case of carriers in the foreign trade.

Railroading cannot be extended on Avenue. The impossibility of anything of the sort along Atlantic Avenue is immediately apparent. Atlantic Avenue is a marginal way for teaming. The elevated structure upon it is bad enough, the Union Freight tracks are worse. It would not be wise to remove them, in view of the interests that have grown up dependent upon them. But there is no excuse for extending the use of these tracks. An advantage of the carfloat belt proposed is that (as has been seen) it would relieve the

[1] The Savannah Line has since 1914 moved from Atlantic Avenue to a pier at the Boston & Maine's Hoosac Docks.

Union Freight of all railroad interchange business, and so restrict its use. It will not be easy to devise any method of making a tolerable waterfront belt out of tracks along Atlantic Avenue, whether by running such tracks on the surface, above or below ground.

Solid buildings east of marginal street. Boston proper has for a hundred years been growing at the expense of its waterfront. Strip after strip has been filled in until the original outer end of "Long Wharf" is now located somewhere inland from Atlantic Avenue. The Boston Tea Party took place on what is now good dry land, separated by several squares from the sea. Even when Atlantic Avenue was established as a marginal water street, the encroachments did not cease. People were allowed to go on building on the water side of Atlantic Avenue. There is a long deep row of buildings, several stories high, extending from Northern Avenue to Rowes Wharf, on the water side of Atlantic Avenue. On Union, Lewis, Commercial, Long, Central and India wharves are stone or brick blocks used for storage or manufacturing. Further north on the Avenue there is erected a huge cold storage plant, as well as the great power house of the Boston Elevated Railway Company and Lowney's candy factory. Some one either did not have the power, or did not exercise the power to keep industrial and commercial enterprises off the waterfront, off the territory outside the marginal street. If the power to prevent this in the future exists, it should be exercised; if it does not exist, it should be conferred upon the Port Directors.

The heavy occupancy of the waterfront, east of Atlantic Avenue, by expensive permanent structures, makes it a financial impossibility to create a water-

front belt of the type described, or in any way work out a unified treatment of this entire waterfront, the most valuable and vital single pier frontage in the city.

Map of Atlantic Avenue situation. Plan D (opposite) shows the main features of the Atlantic Avenue situation. It gives the outlines of the coastwise piers and their names. Wooden sheds or buildings are also outlined. The cross-hatched sections represent stone or brick structures that would have to be removed in any reorganization of this district. The tracks of the Union Freight Railroad are indicated. The ships of the various coastwise lines, drawn to scale, are also shown at their berths. Their situation is that of a Friday afternoon, in 1914. Where the in- or out-berth of a line is different from the one here occupied, such location is shown in dotted line. In the summer time when the passenger business of the northern coastwise lines is running heavy, there are more boats in port than here shown. Only one boat of each service is shown to be in port.

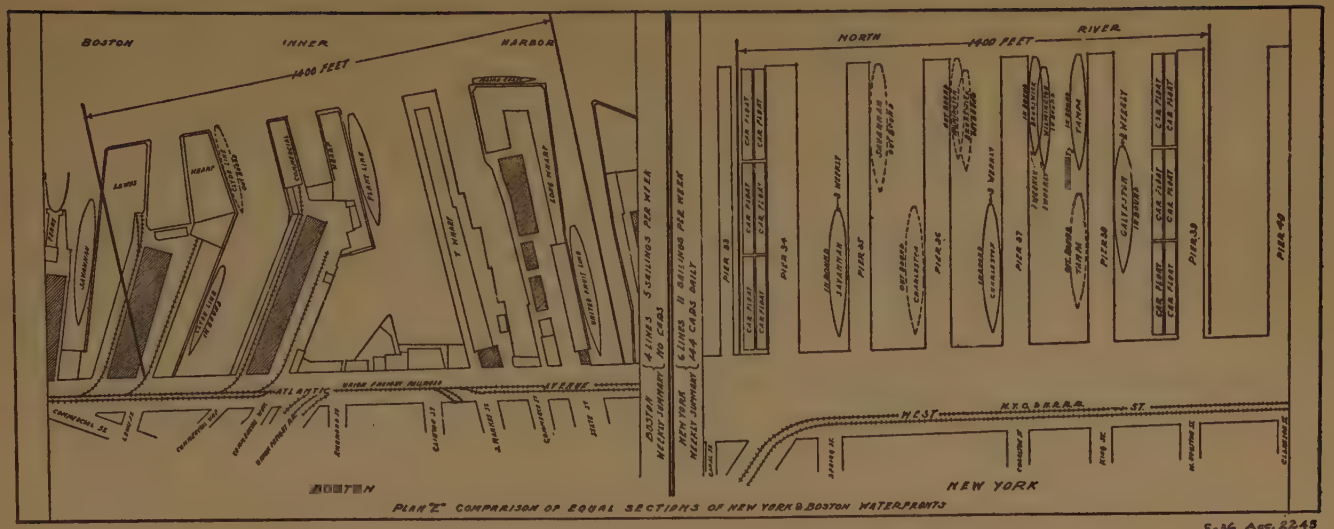
Small maritime use of Boston waterfront. The striking feature in the situation is the small maritime use made of the 1,400 feet of available frontage between Central Wharf and the north half of Lewis Wharf. In this entire area are berthed only three lines: the Clyde Line, the Halifax Line and the United Fruit, representing only four boats in per week and four boats out.[1] The reasons are obviously the narrowness and the angles of the slips, and the occupancy of

[1] The Maine Coast Steamship Company with one sailing per week should be added to this list. Since the map was made, the Merchants & Miners services have been removed to a pier of the New Haven road at South Boston and the Savannah Line to a pier of the Boston & Maine at Charlestown.

a section of the area by T Wharf and the fishing industry. T Wharf is to be abandoned and the fishing industry is to remove to South Boston. Before a non-maritime use of T Wharf is decided upon, there is opportunity to begin a reorganization of this coastwise frontage. This is the only area where modern long piers can be provided, partly because only here could a modification of the pierhead line reasonably be asked; partly because north of the slip of the South Ferry to East Boston are erected permanent buildings of the most expensive character,[1] which make any reformation of this portion of the waterfront financially impracticable. South of Long Wharf the waterfront is well utilized for maritime purposes today.

Manhattan and Boston waterfronts compared. Manhattan, being an island, has a far longer shore line than Boston, a peninsula of which only a stub end can be used to berth steamers. Boston needs a more intensive utilization than New York of the area in which it has contact with the sea. New York's utilization of its waterfront is, however, far more intensive. Plan E (opposite) shows the Boston section in question; alongside it is a typical 1,400 foot section of the Manhattan West Side waterfront, drawn to the same scale as the Boston section and so absolutely comparable. The New York 1,400 feet include Piers Nos. 34-39 inclusive, which are seen to berth six steamer lines, giving 12 sailings weekly. Pier 34 can at any time be taken for a coastwise service running three boats a week. Pier 39 can be similarly taken for a coastwise service with three weekly sailings. So the potential berthing capacity of the New York

[1] The power plant of the Boston Elevated, for instance, is assessed for $3,206,000.



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Comparative Utilization of New York and Boston Waterfronts

section is eight coastwise lines with 18 sailings per week.[1] This compares with four lines having five sailings, accommodated on the same length of waterfront in Boston. Yet the Boston area is one-third the entire coastwise waterfront available for berthing coastwise lines. The New York 1,400 feet represents 4% of the length of the continuous row of long piers on the Hudson River (West Side) waterfront alone, from the Battery to 60th Street.

Boston's commercial prevail over maritime interests. A consideration of the Boston section shows that it is built to accommodate commercial and industrial concerns that can afford to pay high rentals for much land space, rather than for coastwise lines that can afford to pay only lower rentals for much water space. The principle seems to be: If there is, anywhere along the edge of the industrial area built out into the water, room for a pier shed and a slip wide enough for a steamer, then by all means accommodate that steamer. But no effort has been made to rearrange the piers to provide for enough water between them so that even the entire length of the pier fringes could be used to berth steamers. The competition between the land and water users of the frontage for this choice situation in the interior of the city is an unequal one. It could have had but the single result that has come about: the elimination of the water lines except as incidental users. If the elimination contest were one

[1] Carfloats of the Lehigh Valley lie alongside Pier 34 and discharge freight upon the pier, used as a local New York freight shed. This also is a legitimate transportation use of the waterfront and one in which Boston may some day take an interest. These railroad piers are freight stations on the carfloat belt line which New York harbor waters represent. Similarly, Pier 39 daily receives 25 cars of freight of the Central Railroad of New Jersey, and loads 47 cars out.

of private concern only, it could be viewed without disturbance. But the outcome of a contest which, for the benefit of the Atlantic Avenue distributors and industries, creates a landsmen's monopoly of the only part of the city where public water carriers can berth or expand their terminals, or new public carriers can be accommodated—this is a matter not of private interest alone.

The wharves included in the Boston section under discussion have an assessed valuation of $3,344,200. The high price that must be paid to regain coastwise water frontage in this city is the penalty that must be paid for the folly of Boston in allowing private interests to build across its highway to the sea.

Elsewhere, waterfront is reserved for shipping. Nothing of the sort is allowed in New York, Philadelphia or Baltimore. Yet New York has faced and solved the same problem which Boston now has. It originally owned all its waterfront, but between 1686 and 1800 alienated most of it to private parties. The alarming use made of the frontage for other than maritime uses, exactly as now in Boston, is what determined the city in 1870 to set out to re-acquire the waterfront. Over $100,000,000 has been spent for this purpose. The Dock Department now owns 150 of the 180 piers between 67th Street, North River, and Corlear's Hook, East River, and has a part interest in other piers. New York is an example of the importance a seaport attaches to the matter of guarding for water carriers its area of contact with the water. The sacrifice the port of Boston need make is small in comparison.

CHAPTER XIX

NEW COASTWISE PIERS ON ATLANTIC AVENUE. LIGHTERAGE OPERATIONS

No good belt line in New York, Baltimore or Philadelphia. With regard to railroad tracks on the coastwise piers, New York, Philadelphia and Baltimore are no better off than Boston. In Baltimore there is no rail connection with Light Street, on which most of the coastwise steamers dock. In Baltimore the coastwise steamers usually call at the various railroad piers with or for freight exchanged with those railroads. Where the exchange is not large, as with the Western Maryland, the coastwise steamer goes to its dock and lighters its exchange freight. So in New York, there is no railway connection to the piers on West Street, Manhattan, where the coastwise steamers lie; they lighter everything to and from the lighterage sheds of New York railroads. In Philadelphia, these coastwise vessels lie at the docks on Delaware Avenue, the water street. There are tracks on Delaware Avenue but there are restrictions upon the operation of these tracks by day, similar to the restrictions laid upon the Union Freight. Some coastwise lines in Philadelphia, such as the Clyde, have no connection with these tracks and, in their tariffs, provide for drayage between the piers and the railroad stations.

The reason why. The fundamental difficulty in all

cases is connected with the fact that the coastwise lines are far older than the railroads. The water gate of the seaport is the section around which the business city grew and grew solidly. The railroads, built later, could never quite reach this central core. When the desirability arose of direct connection between the enclosed waterfront and the outlying railroad termini, it was no longer easy to make that connection. If the connection was made at all, it was at the expense of clogging the waterfront street with railroad tracks. The railroad tracks interfere with the use of the street as a teaming way; the heavy teaming requires that restriction shall be placed upon the use of the tracks so laid. Railroad cars and drays have no business being operated on the same roadway.

Lighterage necessary. The best thing to do is to recognize that physical connection between railroad car and the coastwise steamer is no longer practicable, when real service in transfer between the two is desired. The substitute for this direct connection between car and boat is lighterage.

What lighterage is. Essentially, lighterage represents a type of direct contact between car and boat. Under the ordinary form of such contact, goods are handled from ship to pier floor, thence to car, which is switched to the railroad yard. A lighter is a floating shed which is loaded with boat freight and switched (towed) in the harbor to a point alongside a railroad car. The method is perhaps slightly more expensive than by direct transfer between the two carriers, but it has great compensations. The system is best observed in New York, where lighterage is exclusively employed for carload exchange between railroad and steamer, both coastwise and oversea.

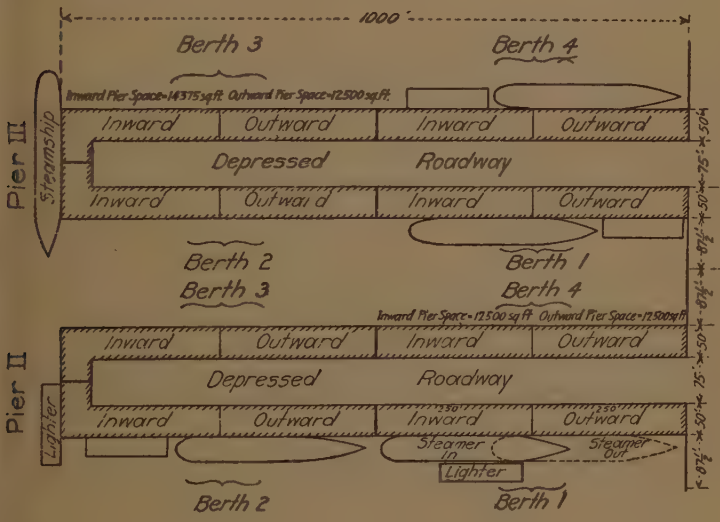
Lighterage increases capacity of pier. All Boston coastwise steamers have large proportions (usually half) of local freight inbound and local freight outbound.[1] This freight must be brought to the pier, or taken from it, by drays. It requires a large space to receive, store and handle this local freight exchanged between steamer and local dray. The size of the pier must be considerably increased if part of the necessary space is pre-empted by depressed railroad tracks. The area of the pier shed must be increased if it must shelter rail freight en route to the boats. The capacity of the pier for handling local freight is greatly increased and this operation simplified if the transfer with railroads can be relegated to lighters which lie in the slip alongside the vessel and enable her to work cargo in and out on both sides at once. The Merchants & Miners has stated that at Baltimore, with half the floor space they have at Boston, they handle twice as much cargo. That is because, before they discharge local cargo, they go to the Pennsylvania and B. & O. piers and discharge through freight. The effect would be the same if the Baltimore boat were to lie at a coastwise pier and discharge all local freight on the pier, all through freight overside. Also this handling of cargo over both sides of the vessel shortens the time in which the ship can be loaded and unloaded.

Here again is seen an application of the principle of floating past congestion, the congestion of the water street and the whole crowded interior business city. Again the harbor waters are a belt line for use. A

[1] That is, the freight of these steamers is half Boston freight and half interior freight carried by the railroads.

plan will now be sketched for the development of this lighterage system in Boston.

Rearrangement of Atlantic Avenue waterfront. While the lighterage system to be outlined can be begun under the present conditions of pier occupancy on Atlantic Avenue, the system cannot render its full service until there is a rearrangement of these piers. It is worth while to indicate the general type of rearrangement that should be made. Plan F, on this page, is a plan of two piers, to be located in the Lewis



— Plan F —

Plan of Two

PROPOSED 1000 FT. COASTWISE PIERS

ON

ATLANTIC AVENUE

Scale, 1in.=150ft

Wharf-Central Wharf section. The exact type of each pier would be determined by the prospective user. The piers here sketched are suitable for lines which are not heavy freight carriers and whose freight is largely local to Boston, such as the lines to Maine and the Maritime Provinces. They are also suitable for use as railroad pier stations, mentioned later. The piers are an attempt to arrange for the maximum flow of traffic through the narrow gateway represented by the Atlantic Avenue waterfront. The high value of this water frontage recommends intensive use of it.

Piers and slips. The proposed piers are 1,000 feet long. This would make necessary a modification of the pierhead line at the location chosen. Approval for such modifications by the War Department should be given in the case of a necessary and far-reaching improvement. This was evidenced when the Department granted New York and New Jersey their recent extension of pierhead lines. The extension in Boston would be at a point where the upper harbor is wide. There is a proposed slip 175 feet wide between adjacent piers. This width of slip is sufficient to allow two large coastwise steamers to lie opposite each other, in the slip, each with lighters alongside—and yet leave room for other lighters to pass in or out from one end of the slip to another. The widest of the slips on the section of the New York waterfront already shown is 175 feet—the slip between Piers 37 and 38. In it ships opposite each other are constantly worked by lighters. Four steamship lines can be accommodated at each of these proposed piers, each pier 175 feet wide, and each carrying a fringe of sheds 50

feet wide, and having a depressed roadway in the center 75 feet wide.

It is rare that two steamers of a line are in port at the same time. What is needed are two berths so that when a boat has finished discharging she can move to a place where out-cargo has been accumulating for her; but these berths may overlap. The positions of a steamer loading and discharging, respectively, are shown in Berth 1, Pier II. The vessel discharges her cargo on half of her pier shed and outward freight has been gathered on the other half. The typical Boston coastwise steamer is 250-300 feet long; the longest coastwise boat in port is 377 feet. There are 12,500 square feet of pier shed for inward and the same area for outward cargo.

Neutralizing tidal differences. The ranges of tides at Boston (average 9.5 feet) bring it about that, at low water, the lower loading ports of the steamer are considerably below level of the pier shed. The difference is a considerable one for hand truckers to overcome. It is proposed to overcome this difference in level in a way already in use here. At frequent intervals along the edge of the pier shed adjustable ramps or drops are built, so as to be opposite each position of a loading port. A level stage is laid connecting the port and the ramp, and upon this stage the loaded hand truck moves. On striking the ramp it finds a common mechanical device, consisting of a narrow endless chain running up underneath the ramp on its right-hand side. The speed of the chain is that of a man walking. Through a slit in the ramp floor project, from the chain, steel fingers which engage the truck axle and carry it up to the pier floor. The practical effect is to nullify the difference in level,

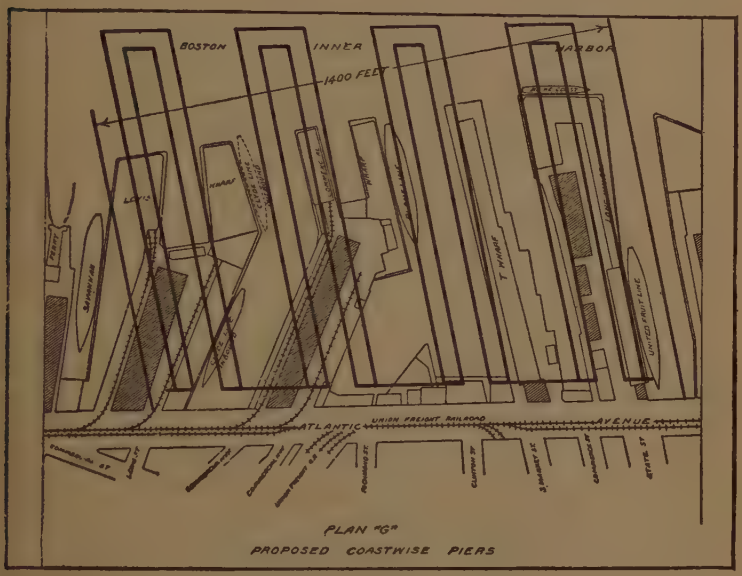
without sacrificing anything in freedom of movement. On the other half of the ramp a corresponding chain runs down; here the empty trucks descend. The movement of the chain is reversible. When loading a ship at low water, the loaded trucks descend, the empties ascend.

Handling local cargo. The shed space is exclusively for local cargo; all freight for or from railroads should go overside. Inside of the pier shed runs a 75-foot driveway, down to the end of the pier. This width is ample to allow teams to back up against opposite sheds for their entire length and yet leave room for other teams to pass and manœuver between those standing. The depressed driveway brings the tail-board of the cart on a level with the shed floor, so there is no lifting of freight passed from one to the other.

New piers and present layout. On Plan G, on next page, the four new coastwise piers are shown superimposed upon the present ineffective layout between Lewis' and Long wharves inclusive, already shown on Plans D and E. It has been seen that the assessed valuation of the 1,400 feet of waterfront in question is $3,344,200. Assuming that it would cost $5,000,000 to acquire the property and $750,000 each to construct the piers, they would cost, completed, $2,000,000 each. To get a 5% return on such an investment a rental of $100,000 from each pier would have to be earned, or $25,000 for each berth. This is not an exorbitant rate for Boston, viewed in the light of rentals now paid by the coastwise lines for their berthing space.

All of the berths except those on Pier I (northwest pier) and the southern half of Pier IV should be

assigned to coastwise lines.[1] This addition to the Atlantic Avenue pier accommodations would relieve the immediate pressure at that location. As necessity arises, two further long piers could be built alongside



those here proposed; namely, a fifth 1,000-foot pier substantially on the lines of Central Wharf, and a sixth pier of 600-700 feet on the lines of India Wharf.

Piers sketched suitable for light coastwise lines. It is realized that the quarter-pier berths here mentioned are not suitable for what might be called the major coastwise lines, the great freight carriers running south from Boston. These are: the Merchants & Miners services to Baltimore and the Virginia ports, the Clyde Line to Charleston and Jacksonville, the

[1] Pier I and half of Pier IV are reserved for railroad pier stations, as explained later.

Ocean Steamship Company to Savannah, the Metropolitan Line to New York. The Merchants & Miners services are to remove to South Boston, to one of the New Haven's piers there. The Metropolitan Line would need an entire side of such a pier as sketched, and would need a two-story shed to shelter the large volume of cotton that often passes over the wharf.

Type of pier for heavy freight carriers. The Clyde and Ocean Companies[1] would probably prefer each to occupy half of a 1,000-foot pier of different construction; namely 100 feet wide and with 200-foot slips on either side. The floor of this shed would be continuous, without depressed roadway. The pier would then be operated as in New York. The boat discharging cotton would lie on one side of the pier and the cotton would be wheeled across the pier, used simply as a transfer platform, to lighters on the opposite side. The proportion of local Boston freight in the cargoes of these carriers is so small that they prefer an unobstructed transfer floor on which to truck and switch their northbound cotton into lighters, rather than a floor area broken by a roadway for the convenience of local patrons.

Four proposed piers would relieve congestion. If four piers were built and utilized as here suggested, two and a half piers would be allotted to coastwise lines. All services of the Eastern Steamship Corporation except the New York freight boat (Metropolitan Line) could be accommodated on one pier of the type sketched in Plan F. On half of another such pier the

[1] The Ocean Steamship Company of Savannah has since removed its terminal to a pier of the Boston & Maine at Charlestown. Both it and the Merchants & Miners were driven off the Atlantic Avenue waterfront by the conditions of congestion here described.

Metropolitan Line would berth. A full pier of the type just described—100 feet wide—would accommodate the Ocean and Clyde Lines. The 1,000-foot piers are really terminals. Though the details of their construction and use cannot be prescribed without collaboration with their respective users, these terminals will serve to relocate in modern quarters the bulk of coastwise shipping in the port not already well provided for.

Lighter positions. As to the lighterage system iself, applying to package freight.[1] In Plan F, one or two covered lighters lie alongside the steamers and all railroad freight is trucked through the side ports into these lighters. One is shown opposite the inward boat at Berth 1, Pier II. Two could lie alongside, one at either end of the ship. A third could lie along the pier between the boat and the end of the slip as shown at Berth 1, Pier III. Freight for these along-pier lighters could be trucked out of the ship up a ramp to the pier, along its pier edge and down into the lighter. Another lighter position, along the end of the pier, is shown for Berth 2, Pier II.

Weakness of the lighterage system. There are certain weaknesses in any lighterage system. It does not pay unless the lighters can be run full. The unit is so large (50 to 500 tons) that it is a loss to tow it about unless it is full. It is cheaper even to dray freight if the shipment is small; the services of only small units, drays, are paid for. Under present

1 This excludes from consideration coarse freight: primarily lumber, cotton, naval stores, clay in barrels. These coarse articles move in carload lots and are handled on open lighters (sometimes with tarpaulins to protect the freight, as in the case of cotton). Package freight often moves in carload lots (wire, domestics, paper, shoes, chairs) but is usually not weatherproof and is handled on roofed lighters.

conditions it would be necessary to have separate lighters for each Boston railroad, for it would not pay to peddle a 300-ton lighter about, to say nothing of the loss of time and deterioration of transfer service involved in such a proceeding. But the tonnage for the Boston & Maine today might load two lighters full while the New Haven lighter might go away with 15 tons. Tomorrow the case might be reversed. In either case the light-tonnage lighter would be a loss. Moreover, the system would not be flexible. Suppose that the Boston & Maine lighter were outside of the ship, next her forward-port. A number of shipments come out of her after-port destined to the Boston & Maine. The only thing to do is to deposit this freight on the pier and later rehandle it into the Boston & Maine lighter, or spot a special Boston & Maine lighter along the edge of the pier and handle the after-port freight over the pier and into this lighter. This second lighter will probably go light.

It is to be noted that two sortings of the freight are necessary: one on the ship's deck or the pier, where the shipments are sorted and switched into lighters for various railroads; one at each railroad lighterage shed, where these same shipments must be sorted and switched into their cars for destination. These difficulties of light loading and lack of flexibility in the lighter system are obviously based on the large size of the transfer unit. The impossibility of meeting these difficulties is the reason why lighterage is not more extensively employed in the port. It is now availed of principally for the purpose of handling those shipments of lumber and cotton which move in full lighter loads to one railroad.

Merchants & Miners lighterage in Boston. A suc-

cessful experiment in lighterage of package freight has already been made by the Merchants & Miners Transportation Company, applying only to their interchange with the Boston & Maine. Last summer they began lightering all freight, C.L. and L.C.L., between their Norfolk, Baltimore and Philadelphia boats and the Boston & Maine's lighterage shed on Mystic Wharf. The Baltimore boat discharges Monday, Wednesday and Friday; the Norfolk boat Sunday, Tuesday and Thursday; the Philadelphia boat, Monday, Wednesday and Friday. The Baltimore boat loads Monday, Wednesday and Friday; the Norfolk boat, Tuesday, Thursday and Saturday; the Philadelphia boat, Tuesday, Thursday and Saturday. So there is at least one boat discharging and one loading practically continuously. Lighterage cars arrive on the night trains of the Boston & Maine and are set alongside the Mystic Wharf shed. They are unloaded by trucks which are wheeled across a wide platform and down into the lighters. As soon as a lighter is full, it is pulled out and taken alongside the loading boat. By noon all the Boston & Maine cars are unloaded and are spotted[1] as empties, each empty being designated by the name of a Boston & Maine station for which at least 6,000 pounds (the carload weight in this instance) is daily furnished by the Merchants & Miners lighters. Lighters from the Merchants & Miners discharging boats are then brought alongside the shed. Shipments are trucked out of these full lighters and put into the spotted cars, which are to be pulled out and sent away on the night trains for destination.

[1] To spot a car is to set it and give it a destination so that L.C.L. can be trucked into it and made into a consolidated carload.

Cars between Mystic and interior points. In the case of Boston & Maine stations which can daily supply 4,000 pounds for the Merchants & Miners, a direct car is loaded for Mystic Wharf, which is of course satisfactory. The only difficulty has to do with the necessary method of routing L.C.L. This method should be understood. Few points beyond Portland can load a daily car for Mystic Wharf. It might be a week before some of these points could accumulate enough freight to make a direct car; this would be an intolerable delay for shipments from these points. However, each point can load a daily car jointly for all points this side of Portland. So each of these small stations does load such a car to Portland Transfer.

The transfer station. L.C.L. for boat. Portland Transfer consists essentially of a covered platform, on one side of which lie the loaded cars that come in from the North and East, while on the other side are spotted the empties that are to be loaded for the South and West. One of the spotted cars is for Mystic Wharf. The shipments from all points beyond Portland are sufficient to load a daily car for Mystic; so these shipments reach Mystic only twenty-four hours later than if they had been put in the direct Boston merchandise car from point of origin, but probably five days earlier than if they had lain at the station of origin, waiting for the carload minimum to accumulate for Mystic. This is the principle of the transfer station. The transfer stations outside of Boston, on the various radiating lines of the Boston & Maine are Ayer, Lowell, Lawrence, Portland and Salem (see Map II, following text).

Each point between these transfers and Boston,

unless it had 4,000 pounds, would normally load L.C.L. for Mystic *back* to the transfer at Lowell, Lawrence, etc. To prevent this back haul and a delay of twenty-four hours in the service from near-by Boston points, each such Boston & Maine local station is authorized to load to Mystic a daily direct car, "regardless-of-quantity."

L.C.L. from boat. Similarly, with freight from the boat to interior points. The Merchants & Miners loads a daily direct car to all Boston & Maine points for which 6,000 pounds daily can be accumulated. When this is not possible, L.C.L. to points beyond the transfers are loaded to the intermediate transfer station. There would be a bad deterioration of service to points near Boston if L.C.L. to those near-by points had to be loaded to the transfers and then back again. So the Merchants & Miners absorbs the cost, averaging 4¢ per 100 pounds (more for bulky freight) of draying[1] to the local Boston freight station L.C.L. shipments to such near-by points.[2] At the local station the shipments are consolidated with Boston merchandise, which is sufficient to load a daily direct car to all these near-by points on the Boston & Maine lines; the car is ready for delivery at destination next morning.[3]

[1] This is the method employed by other Boston coastwise lines for *all* L.C.L. freight.

[2] In the case of freight *to* these points, the Boston & Maine does not allow the daily loading of a regardless-of-quantity car to each station, as in the reverse direction.

[3] In the same way, a daily Boston merchandise car is loaded, up to evening, at nearly all Boston & Maine points and is ready for delivery alongside the Boston local station early next morning.

CHAPTER XX

A UNION LIGHTERAGE SYSTEM

Extending lighterage to serve all coastwise lines. This Merchants & Miners lighterage service is good as far as it goes. Its advantages should be extended to apply to interchange between the Merchants & Miners and Boston & Albany and New Haven. The advantages of a universal lighterage interchange with all rail carriers should be similarly offered to all coastwise lines. It is proposed to effect this by the institution of a union or consolidated lighterage service, which would provide for the maximum concentration of freight into full lighter loads. Such a service would remove the limitations inevitable in lighterage exchange between a single railroad and a single coastwise line. These limitations are: the necessity of sorting rail interchange freight—according to railroads—before it goes overside; the sending of frequent light lighter loads; the impossibility of running straight cars between lighterage shed and smaller points beyond the transfers, and the consequent delay of twenty-four hours there. Under the system proposed, the draying of package freight, in any quantity, between any steamship line and any railroad, would be infrequent.

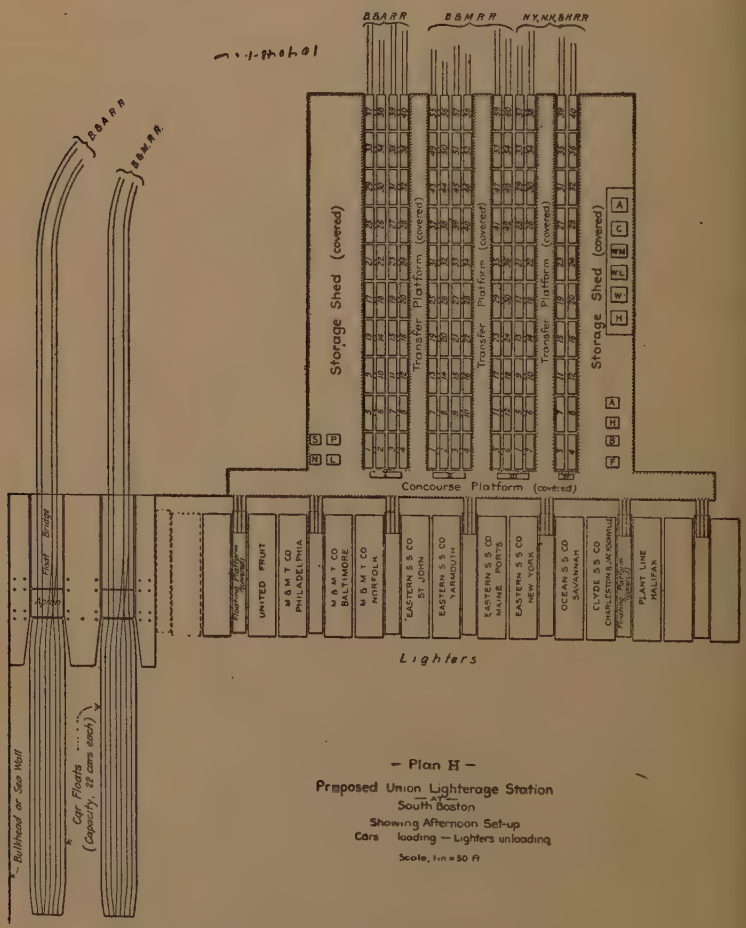
Union Lighterage Station. The proposed system involves the construction of a Union Lighterage

Station for the Boston & Maine, Boston & Albany and New Haven. This station should be located where the three roads can be brought together; namely, on the Commonwealth Flats at South Boston. Boston & Maine and Boston & Albany "Boston Lighterage" cars would be floated across along with the cars for South Boston industries, and for the proposed South Boston local stations of the roads. New Haven cars would be switched direct from the New Haven yard, past the South Boston storage yard of the Port Directors. The Lighterage Station should be located adjacent to the South Boston float bridges of the Boston & Albany and Boston & Maine, so that it would be a simple switch-back to set Boston Lighterage cars in the station.

Its construction. The proposed Union Lighterage Station is shown on Plan H (next page). It consists of 14 depressed railroad tracks, 4 for the Boston & Albany, 4 for the New Haven and 6 for the Boston & Maine. Each track holds 10 cars, so that the Boston & Maine can set 60 cars at once, the New Haven and the Boston & Albany, 40 each. Every set of 4 tracks is separated from the next 4 by a covered transfer platform 20 feet wide and of the height of the car floors. Each platform serves 4 tracks, 2 on either side, reaching a car on the second track in each case by trucking through the corresponding car on the first track. By opening car doors and setting short stages between the cars or between car and platform, 40 cars are thus thrown open to a single transfer platform. The separate parallel platforms all lead to a concourse platform 30 feet wide, from which covered ramps (incline 1:3 at low water) lead to covered

floating platforms, always on a level with the lighters alongside.

Ramps. On either side of each floating platform lies a lighter whose three ports are open and connected with the floating platform by short stages. The first



UNION LIGHTERAGE STATION

port of the lighter is directly opposite the foot of the ramp. The ramp is 15 feet wide. Near its center run two chain elevators of the type already described. When loaded trucks are moving up, these elevators assist them; the empty trucks move down on either unobstructed side of the ramp. When the loads are moving down, the elevators are reversed to run with them to check a too rapid descent; the empty trucks ascend on the unobstructed ramp sides.

Operation. The method of operation would be somewhat as follows. Every New England point of importance is instructed to load one or more daily Boston Lighterage cars, which contain all C.L. and L.C.L. package freight for interchange with all Boston coastwise carriers. By nine o'clock the New Haven, Boston & Albany and Boston & Maine cars, coming in on night trains from all New England, would all be set in the Lighterage Station. The New Haven cars could probably be in and unloading at seven, the Boston & Maine at eight o'clock. In any case, all doors are open and all cars are being unloaded at nine a.m. Lighters have been set in position, each lighter being designated for a major Boston coastwise service. The hand-truck men then proceed to unload the cars into the lighters, as is done at the ordinary transfer station.

As the cars are pretty well unloaded it may turn out that there are, in distant cars, a number of small shipments, no one of them large enough to load a hand truck. Rather than come with a light truck, the trucker is instructed to load them all on and drop all but one on one of the spaces marked I, II, III, etc., on the concourse platform. From there the small

individual shipments are distributed to their destination lighters. There are to be no light loads for the longer trucking distances.

Railroad interchange L.C.L. Incidentally, another class of freight should come in on these Boston Lighterage cars; that is, all L.C.L. freight for interchange between the roads should be put into the Boston Lighterage car of the station originating the shipment. It will be noted that there is a 60-foot platform on either side of the entire track layout, labeled "Storage Shed." It is not intended that there shall be any storage at this transfer station, but the space is there for emergency and incidental use. One incidental use is to handle this railroad interchange of L.C.L. During the afternoon certain New Haven cars, then empty, will be loaded out to local New Haven points. On the storage platform opposite the places where those empties will be are small spaces marked F (Fall River) and B (Brockton). All L.C.L. freight from Boston & Albany and Boston & Maine points for Brockton is during the morning taken out of the Boston & Albany and Boston & Maine cars and dropped on the space B. So with the spaces H (Hyde Park) and A (Attleboro). In the afternoon when the cars are being loaded, these shipments are picked up and trucked into the adjacent New Haven cars, which go out on the New Haven night trains. The method is as rapid as the present method of transfer by dray across Boston and would not cost over 30¢ per ton, compared with 80¢ by dray at present. In the same way the Boston & Maine spaces marked N (Nashua), P (Portland), S (Salem), L (Lawrence), are used to collect, during the morning, L.C.L. transfer freight

from Boston & Albany and New Haven cars. Boston & Albany spaces would also be designated, but there would not be so many of them; the Boston & Albany has not a large number of important local points not reached either by the New Haven or the Boston & Maine, or both (Worcester and Springfield).

Moving the lighters. To return to the lighters. By twelve o'clock the cars are all unloaded and are spotted for destinations for outbound rail freight to be loaded from the lighters in the afternoon. The loaded lighters are pulled out of the lighter berths. In all cases where the lighter's parent boat is in port, the lighter is towed across to her and she loads from it during the afternoon. If the ship is not in port, or not yet ready to load, the lighter is set aside in the Lighterage Basin, soon to be described. Of course if, during the morning, a lighter should have been filled, it would have been pulled out and another set in its place. The loaded lighters are, during the noon hour, towed to their outward steamers. Their sailing hours are, as a rule, from three to five in the afternoon, and before the ship sails she will have taken aboard the railroad freight arriving on this, her final day in port. With few exceptions, freight loaded at New England points up to this evening would catch tomorrow's boat. Better service in transfer cannot be given by drays.

From lighter to car. The movement from ship to car is analogous to that already described. As soon as a ship ties up at her berth, two lighters come alongside her outer ports. During the noon hour the lighters that have been loading from the ships all morning are pulled out of the slips and taken to the

Lighterage Station. If the ship has not finished discharging railroad freight, another lighter is put alongside her or at a lighter berth at the pier. The full lighters are set alongside the floating platforms at the Station, and all three lighter ports of each barge opened. In the meantime, the empty cars have been spotted for outward destinations. Hand-truck men then transfer package freight from lighters to cars. In the meantime, truckers will have proceeded to the space marked L in the storage platform and will have placed into the Lynn car, Boston & Maine 10, all the L.C.L. deposited in that space by truckers from Boston & Albany and New Haven cars during the morning.

Service from Lighterage Station to interior. By 4 o'clock or 4:30 the freight from the lighters will all be transferred into the cars, which will be sealed up. At 5 or 5:30 Boston & Maine and Boston & Albany cars will be pulled and consolidated upon carfloats along with the cars from South Boston industries, cars from the new South Boston local stations, cars of import freight from Commonwealth Pier. New Haven cars will be switched direct to their yard. The Boston Lighterage cars will be in the outward trains of all the roads the same night, and will be at the local freight stations or private sidings of the consignees all over New England the following morning. That is, freight discharged from a coastwise steamer this morning is in the hands of the consignee tomorrow morning.

Lightering L.C.L. for export. There is one other service that can be properly performed by the Lighterage Station. There is a large export movement of L.C.L. export freight from New England points via

Boston: shoes, machinery, rubber goods, writing paper, fine tools, organs, etc. Every New England point should be instructed to load into the Boston Lighterage car all L.C.L. export freight. This L.C.L. export would be daily trucked out of the cars and to the spaces on the storage platform marked H (Hamburg-American), W (Warren), W. L. (White Star-Liverpool), W. M. (White Star-Mediterranean), C (Cunard), A (Allan), etc. As this freight might not be loaded out the same afternoon it would have to be protected by a railing, with frequent openings, which would shut the export L.C.L. off from the rest of the layout. On the sailing day of a Cunard liner, all the L.C.L. accumulated on the space marked C would be trucked to a steam lighter lying at one of the unoccupied lighter berths, and taken across to the Cunard steamer.

Savings thereby. The charge for this lightering should be 4.5¢ per 100 pounds, which includes 1¢ for handling from the Lighterage Station to the lighter, 1¢ half wharfage and 2.5¢ for actual lighterage. At the present time L.C.L. export freight, from New England or beyond, moves into the local freight station of the Boston terminal road, in the Boston merchandise car. On arrival this freight is teamed by a forwarder from the local station to the pier at a cost, including wharfage, sometimes amounting to 8¢ per 100 pounds ($1.60 per ton). The average is 6-7¢ per 100 pounds. If the freight is of New England origin, this cartage charge is added to the Boston rate and is paid by the shipper. If the L.C.L. originates beyond the New England gateways of Boston railroads (Albany, Rotterdam Junction, White River

Junction, etc.[1]), then the cartage is absorbed[2] by the railroad and not added to the flat Boston rate. The cartage is obviously borne by either the terminal rail carrier or the shipper, and one of them will be benefited if it is nearly cut in two. With the Lighterage Station in operation the shipper, if the charge is his to stand, would pay 3.5¢ per 100 pounds plus half wharfage. At present he pays 4-5¢ per 100 pounds plus full wharfage. Similar is the saving for the rail carrier, if it is its duty to absorb the cost of transfer.

Lightering L.C.L. imports. With L.C.L. import freight the case is somewhat different. Because of customs formalities, such freight might have to be unloaded on the pier instead of overside. Moreover, import L.C.L. does not usually move on through bills of lading but comes consigned to a local forwarder who clears the shipment, drays it to the local freight station of the Boston railroad, and ships it inland. Where such L.C.L. does move on a through bill of lading, the Boston railroad often puts it into a car on the pier. The car would otherwise go west empty; the heavy loading is, as is well known, eastbound, and there is a large movement of empty westbound box

[1] These gateways are indicated by circles on Map II, following text.

[2] The reason for the absorption of drayage on this freight is that it is competitive; it could come by either the Boston & Albany and connections, or by the Boston & Maine and connections. Boston & Maine Tariff F.F.D., I.C.C. No. 377, effective January 12, 1912, has the following provision applying to the traffic in question (page 3): "Rate to Boston will include drayage charge in Boston on leather and machinery of not exceeding five (5) cents per 100 lbs., minimum charge 75¢, and on other commodities four (4) cents per 100 lbs., minimum charge 75¢, to terminals of the Boston & Albany Railroad or New York, New Haven & Hartford Railroad, also wharfage charges of not exceeding three (3) cents per 100 lbs." These are the charges which the Boston & Maine pays forwarders for handling this business.

cars. However, if a demand arose for such a service, a steam lighter could daily call at steamer piers with import L.C.L. and transfer it to the railroad cars at the Lighterage Station for 3.5¢ per 100 pounds plus full wharfage. This would be 0.5¢ to 1¢ per 100 pounds cheaper than the present draying.

Financing this lighterage. It is now necessary to provide for the financing of the lighterage system described. Who constructs it; who operates it; is it self-supporting? It is apparent that no railroad or coastwise line can be forced to use it. It must be shown that there is an inducement for each road and each steamer line to enter the system. If such inducement, in savings under present transfer costs, can be offered to the carriers to be served, and if at the same time the enterprise can be self-supporting, it will be proof of the essentially greater cheapness of lighterage transfer. It will not be extraordinary if all these objects can be accomplished, for there are great opportunities for reducing cost by moving consolidated freight on full lighters, rather than handling it in parcels upon drays.

The Union Lighterage Company. The Union Lighterage Station should be constructed by the Port Directors. They should also acquire the suitable covered lighters in port and build as many others as will be necessary to handle the traffic in question; a sufficient number of tugs to handle this floating equipment is also to be provided. The operation of the Lighterage Station (the transfer of freight between lighters and railroad cars) should be done by the three railroads jointly. The operation of the floating equipment should either be in the hands of the Union Lighterage Company, in which all Boston coastwise

lines should join; or else conducted by the Port Directors.

Lightering at 3¢ per 100 pounds. The coastwise steamer would load the freight upon the lighter instead of on its pier. To load on the lighter direct from the side port is no more expensive than to load on the pier, and the pier is kept free of through freight. The Lighterage Company should then transfer all package freight, C.L. and L.C.L., for a flat charge of 3¢ per 100 pounds. Out of this 3¢ per 100 pounds, or 60¢ per ton, 25¢ should be allowed to the railroads for handling freight between car and lighter. The net to the Lighterage Company, for mere floatage, is 35¢ per ton.

Lighterage costs elsewhere. An analysis of lighterage costs under conditions more difficult than those in Boston shows that this 35¢ should be sufficient to make self-supporting both floating equipment and Lighterage Station. In one of the largest North Atlantic ports a lighterage company handles all the miscellaneous lightered freight of a railroad for 30¢ per ton (1.5¢ per 100 pounds). The railroad puts the freight to the string-piece of the pier; the lighter company takes it into the lighter and stows it, at a cost to the lighter company of not less than 10¢ per ton. This leaves a net of 20¢ for floating operations, interest and depreciation on investment (the company pays a dividend).

3¢ should also make Lighterage Station self-supporting. This company tows in a harbor where there is a heavy current; here, there is little. Its distances average twice that between Atlantic Avenue and the proposed South Boston Union Lighterage Station. Its lighters are not run so full in both directions as those of the Boston Union Lighterage Company would

be. As it serves largely steamers in the foreign trade, its lighters must often wait for the foreign vessel to arrive, and so have unprofitable, unemployed periods, such as the regular Boston service would seldom experience.[1] But assume that 20¢ must be allowed to cover operation and depreciation of Boston floating equipment, 35 — 20 = 15¢ per ton profit to apply to interest on the Union Lighterage Station. If the annual traffic were 333,000 tons, it would give a return of $50,000, or 5% on $1,000,000.

Advantage to coastwise lines. The coastwise carriers would see their piers entirely unburdened of through package freight, and, instead of a cartage charge of 4 to 10¢ per 100 pounds,[2] would pay 3¢ per 100 pounds lighterage. The water carriers which can now use the Union Freight do it at a cost of not under 40¢ per ton, even for full cars of 30,000 pounds: 20¢ per ton for loading to or from the cars and 20¢ per ton Union Freight switching. The initial lighterage charge would be 20¢ per ton higher than this. But the removal of the Union Freight from the pier driveway and of all through freight from the pier floor, and the savings effected on all L.C.L. and all C.L. now drayed, would more than compensate for the difference. In the case of most rail-and-water shipments, the water carrier stands the cost of transfer to or from the rail carrier. In cases where rates are made on a combination basis, being the Boston water rate plus transfer

[1] The charges and costs for lightering by a company operating in a second North Atlantic port work out to the same results here given.

[2] 10¢ for household goods, ice cream freezers, chairs and other bulky articles. On most goods the charge is 4¢; the average would be between 4-5¢.

plus the rail rate, the shipper stands the cost of transfer and would be the one to benefit when that cost is reduced.

To the railroads. The railroads. What advantage is there to the Boston & Maine and Boston & Albany to float Boston Lighterage cars clear across to South Boston?

Boston & Maine. It will cost the Boston & Maine no more to push its cars with lighter freight aboard a transfer float at Mystic than it would to drill and set those same cars alongside its present Mystic Wharf shed, used for interchange with the lighters of the Merchants & Miners. The extra cost for the Boston & Maine begins when the cars are on the float. It has been seen that 0.5¢ per 100 pounds (10¢ per ton or $1.50 per car) is a liberal allowance for floatage to the South Boston float bridges. Allow another liberal 10¢ per ton, $1.50 per car, for the simple switch-back which pulls the cars off the float and sets them in the lighterage shed. Freight then costs the Boston & Maine 20¢ per ton more in a car alongside the shed in South Boston than it would have cost in a car alongside the shed at Mystic. But at Mystic the Boston & Maine must stand the cost of unloading its car; at South Boston it is paid 25¢ per ton for so doing. The cost of floating is offset.

The result is that the Boston & Maine is free to use for other purposes the valuable land now occupied by its Mystic Wharf shed, accommodating lightered package freight for the Merchants & Miners. The space in the local Boston & Maine freight sheds now taken by L.C.L. drayed to steamship lines is relieved and left free for local shippers. The present Boston

& Maine service to Mystic Wharf, introduced to serve the Merchants & Miners alone and relieve the local Boston freight stations of the Boston & Maine, is extended to include all coastwise lines and to further relieve these local stations. The tonnage in the present Merchants & Miners lighterage cars would be more than doubled. The Boston & Maine would gain a space for handling local Boston freight—a space which is equal to that now occupied by the coastwise tonnage now using the local freight stations. The Boston & Maine would also be relieved of the night work of switching coastwise cars in interchange with the Union Freight.

Boston & Albany. Similarly, it will cost the Boston & Albany 20¢ per ton more to lay its freight down in cars in the South Boston lighterage shed than it would to set these cars in its East Boston local station, perhaps 30¢ per ton more than it would cost to set the car at Kneeland Street. At Kneeland Street or East Boston the road would have to unload the package freight car. At South Boston it is paid 25¢ per ton for so doing. The Boston & Albany is very much congested at Kneeland Street. Expansion is impossible unless by some such device as building a second story to the freight shed, and running cars up there on a ramp. The running of a Boston Lighterage car from each important Boston & Albany point would relieve the Kneeland Street station of coastwise C.L. and L.C.L. package freight, and by so much increase its capacity to handle the highly competitive local Boston business. The Boston & Albany would have the same advantages detailed in the case of the Boston & Maine.

New Haven. The New Haven. It will cost the New Haven least of all to set its cars in the Union Lighterage Station, probably no more, certainly not over 10¢ per ton ($1.50 per car) more, than to set them alongside its South Boston freight shed where it must unload them. It would be paid 25¢ per ton for unloading them at the Lighterage Station. The running of direct Boston Lighterage cars from its principal stations would relieve its local freight stations and cheapen its cost of transferring inter-railroad L.C.L. freight, exactly as in the case of the Boston & Maine, already detailed. The New Haven would, most of all, be relieved by being freed from the expensive night switch across the South Station passenger yard, interchanging coastwise cars with the Union Freight.

New Haven's present lighterage cars. Just as the Boston & Maine is accustomed to running Boston Lighterage cars to connect with the Merchants & Miners services at Boston, so the New Haven runs a set of cars to connect with the Merchants & Miners services to the South from Fox Point, Providence. The New Haven service to Fox Point, which is a model for the one it should supply Boston, is worth describing. Direct "regardless-of-quantity" cars are daily loaded for Fox Point (Merchants & Miners) from:

Lowell	Mansfield Transfer
Brockton	Pawtucket
Putnam	Campello
Woonsocket	Marlboro
Middleboro Transfer	Worcester
Fitchburg	Taunton

Montello

Also direct cars are made, "regardless-of-quantity," from the following Boston & Maine points:

Manchester, N. H. Lowell
Gardner Worcester
Nashua

Any other points on the New Haven with a minimum of 6,000 pounds (near-by points, 4,000) also loads a direct car. "Way cars" are daily run to Fox Point for the Merchants & Miners steamers, gathering shipments at all stations between the following points:

Charles River, Mass., to North Bellingham
Morrils, Mass., to North Attleboro
Lonsdale, R. I., to Philipsdale
Millbury, Mass., to Millville

Northbound service. Northbound. Direct "regardless-of-quantity" cars are loaded at the Merchants & Miners dock at Fox Point for:

Ayer Transfer, Boston & Maine
Woonsocket
Warren
Bristol

Direct cars to other New Haven points are made whenever a minimum of 6,000 pounds, destined to one station, presents itself. "Way cars" are made up at the dock with shipments for all stations between the following points:

Franklin, Mass., and Milford, Mass.
North Attleboro, Mass., and Morrils, Mass.
Ashton, R. I., and Manville, R. I.
Blackstone, Mass., and Millbury, Mass.

All other L.C.L. is loaded to Providence Transfer and there consolidated with other freight into through cars to destination.

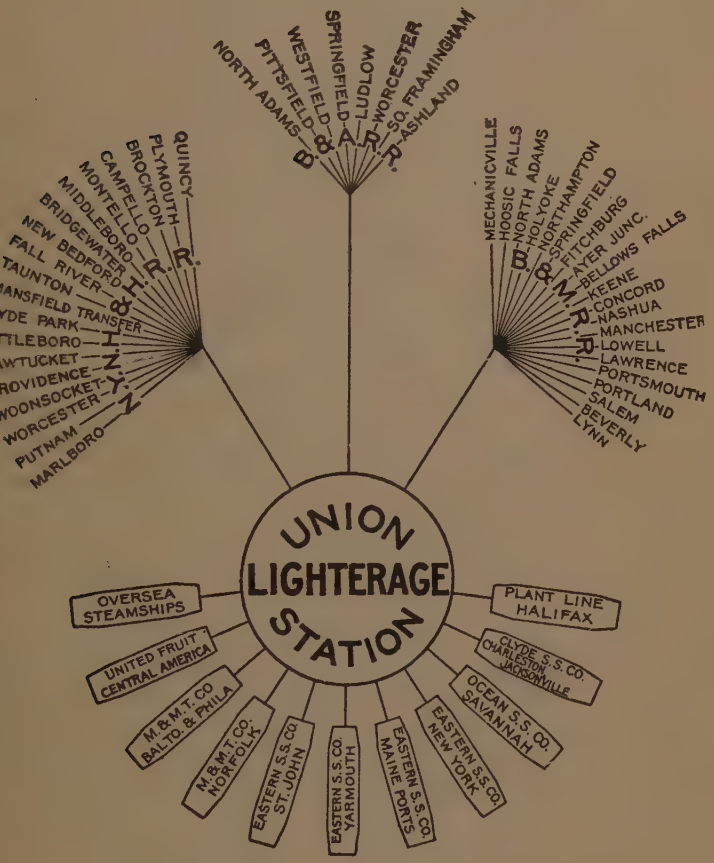
Corresponding service for Boston. No one would want a better or more carefully calculated service than this. The New Haven could run its "Boston Lighterage" way cars and direct cars fuller than the Fox Point cars now run, because the Boston cars would have freight for all coastwise lines, including the Merchants & Miners, whereas the Fox Point cars carry Merchants & Miners freight alone.

Diagram illustrating service. The diagram on next page (Plan I) shows in a graphic way the function which would be performed jointly by the proposed lighterage system, the Union Lighterage Station, and Boston Lighterage cars on the three railroads.

Coarse coasting freight. It will have been noted that up to this time no provision has been made for handling the coarse freight that makes up the bulk of northbound coastwise cargoes. There is plenty of L.C.L. and C.L. package freight moving north, such as domestics, wool, cottolene, Baltimore canned goods in season, etc. But the greater part of these cargoes consists of cotton in bales, rough lumber, pig iron and naval stores.

Not needed for Lighterage Station. These articles are not needed or wanted in the Lighter Station as described. They are not needed because they always move in full car lots, and so are not useful to consolidate into the direct merchandise cars necessary to insure an efficient water-and-rail service. Lighters with these coarse articles are not wanted alongside the package freight lighters, because the large open lighter with 800 bales of cotton aboard would spend

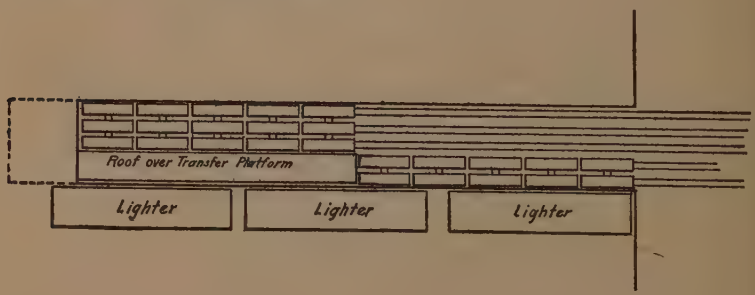
too long a time at the floating platform discharging. Truck loads of long pieces of lumber, wheeling slowly across the concourse platform, would be a nuisance. These articles, which generally move on open lighters and are handled by the lighter's tackle, are best loaded



Plan I — Diagram showing Service rendered by Union Lighterage Station

direct into a railroad car alongside which the lighter lies, without any hand-trucking whatever. Finally, it would be no advantage or saving to the coastwise steamers to have these commodities taken to the lighter station, for such a movement cannot aid the steamers in consolidating full lighters; this stuff moves in a type of lighter of its own, and package freight, which needs a roof over it during transfer, cannot be consolidated with anything on an open lighter. Besides, where there is any transfer of this traffic, it usually amounts to at least a full lighter load and needs no consolidation with anything else.

But could be provided for. The railroad companies may prefer to take this traffic at their own terminals, as at present. However, if they desire, the Port Directors could construct facilities for such transfer adjacent to the Lighterage Station at South Boston. The arrangement of a unit of the Union Lighterage Station for handling such coarse freight between lighters and the cars of one of the railroads is shown on Plan J1, on this page.



Plan J1 — Showing Unit of Layout for Handling Coarse Lightered Freight at South Boston
Scale 1 in. = 50 ft

Nothing revolutionary in Lighterage Station. The Lighterage Station proposed contains no new elements in terminal operation. It is merely an adaptation of methods and installations already in successful operation here or elsewhere, the whole being shaped to meet the particular situation in hand. Even the proposition of shipping consolidated cars of L.C.L. for lighterage to foreign steamers is not new. It is in force at Hamburg. Forwarders—consolidating L.C.L. into cars for export, for instance—are encouraged by the State Railways in Germany far more than by the private railroads in this country. In Germany there is a special low class tariff[1] for 5-ton carloads, and a lower one for 10-ton carloads, of this consolidated L.C.L. As is well known, every pound of such a consolidated car-lot in United States Official Classification Territory pays the C.L. rate of the highest class article in the car.

In Hamburg harbor there is a lighterage station for this particular business, similar in operation to the one here proposed. The Lighterage Station there is erected by the railroad. Each large forwarding firm rents space therein, and several times a week sends a consolidated car from Berlin, one from Dresden, one from Munich, etc. At the Station the shipments in the arriving cars are sorted out for the Hamburg-American New York Line, Hamburg-South American River Plate Line, German East Africa Line,

1 Allgemeine Wagenladungsklasse. Its counterpart in this country is the corresponding tariff established by the Texas Railroad Commission for intra-state shipments, to encourage the development of forwarders consolidating L.C.L. from the steamers at Galveston for distribution into the interior. This was considered in the Traffic Section of this book.

etc. Shortly before the sailing of a Hamburg-American liner for New York, a Hamburg-American lighter comes to the Station and takes aboard all the L.C.L. that has accumulated since the last boat sailed.

Whole layout at South Boston. Plan M, opposite this page, shows the entire layout at South Boston, as proposed in this section. A relocation of the Metropolitan Coal Company and other lessees of the State's waterfront east of the Fish Pier will be necessary, probably on the new Reserved Channel. The Union Lighterage Station and the South Boston float bridges of the Boston & Maine and the Boston & Albany are shown in the angle formed by the present bulkhead wall and the bulkhead now being built to enclose the Dry Dock. The basin where lighters and carfloats lie is protected jointly by two structures. One is the extension of the northerly bulkhead building bounding the Lighterage Station. One is a breakwater built out perpendicularly from the Dry Dock bulkhead. These two structures would allow carfloats and barges to lie quietly at the bridges and platforms while they are being operated. The turning basin provided is ample. Along the Dry Dock bulkhead, inside the basin, waiting lighters and tugs can lie.

From the Lighterage Station, tracks are seen leading to the State's South Boston Storage Yard. Detour tracks lead past this yard to the proposed new South Boston stations of the Boston & Albany and Boston & Maine. It will be remembered that it is proposed that the entire South Boston trackage of the State is to be operated by the three railroads as a joint terminal. The tracks on Commonwealth Pier should

be included; also those on the Fish Pier. From the storage yard, tracks would be built to industries on Commonwealth land north and south of Summer Street, these tracks similarly operated jointly by the three Boston railroads.

CHAPTER XXI

RAILROAD PIER STATIONS IN BOSTON

Carfloat belt and local Boston freight stations. The work of the carfloat belt is not yet done. Its ability has been demonstrated to provide for interchange of both C.L. and L.C.L. freight between water and rail carriers, and between the rail carriers themselves. It can do more. It can be used to improve the present rigid system of local freight stations in Boston, a system involving long draying distances for shippers and consignees, and involving the congestion—affecting both railroads and patrons—which comes from having a too great centralization of the facilities for handling C.L. and L.C.L. package freight.

Present dispersed facilities. The circles indicating freight stations on Plan M, opposite page 358, show the present location of the freight facilities of Boston proper. It is observed that the New Haven freight houses are all in South Boston.

The Boston & Maine freight houses are all in Charlestown excepting for the Minot Street Station of the old Boston & Lowell,[1] just on the Boston side of a bridge to East Cambridge; and the Warren Bridge freight houses of the Fitchburg Railroad,[2] located partly on piles driven in the Charles River and partly on the Charlestown side of a bridge

[1] Present Southern Division of the Boston & Maine.

[2] Present Fitchburg Division of the Boston & Maine.

from Boston. The other terminal members of the Boston & Maine are the old Eastern Railroad and the old Boston & Maine,[1] having their freight houses on Rutherford Avenue, well in the interior of Charlestown.

The Boston & Albany has its freight house at Kneeland Street, to the west of South Station.

Resultant cross-town draying. The shipper or consignee located in the north end of the city must dray his freight 1.5 to 2 miles across town to or from the Boston & Albany Kneeland Street Station or the South Boston Station of the New Haven. A shipper or consignee in the south end of the city must dray his freight 1.5 miles to or from the Warren Bridge or Minot Street Station of the Boston & Maine, probably 3 miles to reach the Rutherford Avenue freight houses. The annual cost of this cross-town draying is very high. The operation can be observed any afternoon, when the north-south streets are clogged with teams. Between 1-4 in the afternoon nearly all these teams arrive at the freight station at once. All want to deliver their stuff that afternoon and have it go out on the evening freights. The congestion between 2-5 p.m. at the limited receiving spaces of these Boston freight stations is very considerable.

This local freight is drayed through the center of Boston, up one hill and down another. Atlantic Avenue, originally built as a marginal street for teaming, is so full of street cars, switching engines, pillars of the structure of the Boston Elevated, and ruts along the tracks of the Union Freight that the street is little used for cross-town draying. Its width of 80

[1] At present jointly forming the Portland Division of the Boston & Maine Railroad.

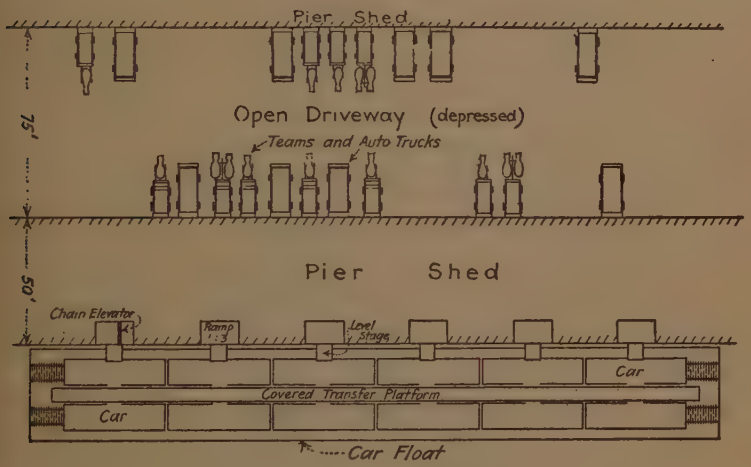
feet would no more than suffice for this teaming if there were no obstructions on the street. New York's West Street, its marginal way, is 200 feet wide.

Lack of competition. A second effect of this rigid layout of freight stations is that, on competitive freight of the north end of the town, the Boston & Albany and New Haven are at a disadvantage. The North Ender may have to dray his Willimantic freight to South Boston and his Ludlow freight to Kneeland Street, but he can take his Chicago freight to the near-by Minot Street or Warren Bridge Station of the Boston & Maine. The converse is true of the South Ender. He may have to dray his Maine freight three miles to Rutherford Avenue but he can ship his Albany freight at Kneeland Street and his Cincinnati freight at South Boston.

Boston & Maine and Boston & Albany stations in South Boston not enough. With the institution of local Boston & Maine and Boston & Albany stations in South Boston, shippers and consignees there would see most of their draying vanish. South Boston competitive business would be thrown open to the Boston & Albany and Boston & Maine. But the main problem is unsolved. Its solution depends upon giving the Boston & Albany and New Haven each a freight station in the North End and the Boston & Maine one in the South End of Boston proper (taking, for example, State Street as the dividing line between North and South).

Carfloats and pier stations. The carfloat belt gives the opportunity of doing this, by means of utilizing piers as local freight stations, loading and unloading from cars on carfloats placed alongside the pier.

Plan K, on this page, shows the manner in which this can be done, and is already done, at New York and Philadelphia. The pier carfloat is different from the transfer carfloat described in that it carries only 12 cars on 2 tracks instead of 22 cars on 3 tracks. The pier carfloat has a transfer platform six feet wide and on a level with the car floors. The platform separates

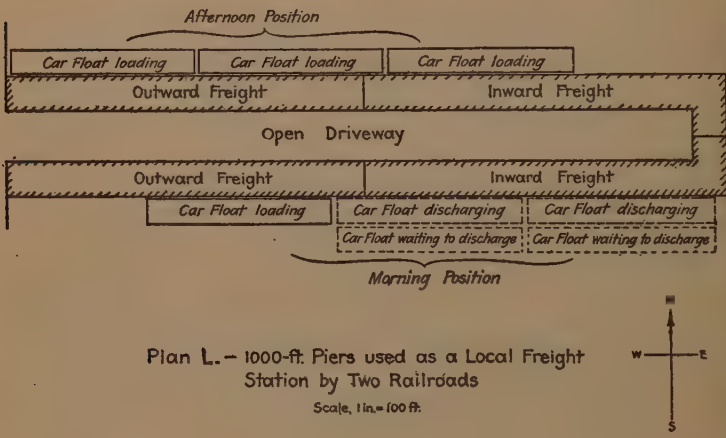


Plan K—Method of using Pier as a Railroad Local Freight Station

Scale, 1 in. = 30 ft.

the two rows of cars. When the float is put alongside its pier, all car doors next the platform are opened, the car doors next the pier are opened, and a level 5-foot-wide stage is laid between each of these doors and a corresponding 1.3 ramp on the edge of the pier shed. It is apparent that every car is then accessible to hand trucks moving in from the pier floor. The pier floor becomes a local freight station with two rows, of six cars each, spotted alongside. As the

variation between high and low water in Boston is 9.5 feet, there might, at low water, be a considerable ascent of ramp. To overcome this, a chain elevator, already familiar, would be run up the right-hand side of the ramp, engaging the truck axle as soon as it leaves the level stage and thus overcoming the difference in level. The chain would be run down with the full trucks during loading hours, and in all cases the unobstructed side of the ramp would care for the



Plan L.— 1000-ft. Piers used as a Local Freight Station by Two Railroads

Scale, 1 in. = 100 ft.

movement of empty trucks, just as at the Lighterage Station.

Construction of pier station. The use of 1,000-foot piers as local freight stations for two railroads is illustrated by Plan L, on this page. The type of pier construction is that already described, so that, if these railroad pier stations are later relocated at portions of the waterfront where piers are shorter, these long piers can be regained and used by coastwise lines. The shed is, therefore, 50 feet wide and abuts on a

75-foot driveway down the center of the pier. From the driveway teams back up against the entire length of the shed. Each railroad has half the pier. Each railroad uses 500 feet of its shed as an outward freight station, the other 500 feet as an inward shed. There is plenty of room for three floats, carrying 36 cars, to use one side of the pier at a time.

Its operation. Morning. In the plan, the carfloats of Railroad I, occupying the south side of the pier, are shown as they are set up during the morning. Discharging carfloats are shown in dotted line, loading carfloats in full line. Two carfloats (24 cars) are seen alongside the inward shed, discharging freight that has come in on the night trains. Two more carfloats (24 cars) lie outside these two, waiting to take their place at the discharging berths. A float (12 cars) is loading at the outward shed, with freight for the noon or early afternoon trains such as the Boston & Maine afternoon freights to the West. As soon as the two inward carfloats are discharged they are removed and the two other waiting ones set in their place. These two latter floats should also be unloaded at 12 noon, when they, with empty cars, are moved to the outward shed for loading.[1] At 12 the loaded float with freight for the afternoon trains is pulled and taken to the parent road. During the noon hour a third empty float is set alongside the pier, whose entire length, during the afternoon, is utilized for loading cars. It is as if 36 of them are spotted alongside the pier, on two tracks.

Afternoon. The afternoon set-up is shown on the north side of the pier, belonging to Railroad II. It needs no explanation.

1 Times are figured on present performance in New York.

Each of the railroads would thus discharge upon its half of the pier 4 floats, 48 cars per day, and similarly load 48 cars.

Location of three pier stations on Atlantic Avenue. It will be recalled that it was suggested that four 1,000-foot piers should be constructed on Atlantic Avenue. One of these piers should be used jointly by the New Haven and the Boston & Albany, the one farthest north, located on the site of the present Lewis Wharf.[1] The southern half of the southernmost pier, at the foot of State Street, should be used by the Boston & Maine. Each of the Boston roads has given it the capacity to load and discharge 48 daily cars,[2] in the choicest location of the city, and in one where the road in question is now at a disadvantage on competitive freight. Thousands of team-miles per year would be saved the drays, and the cost saved the patrons who employ them. The shippers in each section of business Boston would have competition for their traffic by reasonably adjacent freight stations of all roads.

On Plan M, opposite page 358, is illustrated the change in the local freight delivery situation brought about by the installation of these Atlantic Avenue pier stations.

Pier stations on Manhattan. Again this is nothing new. Philadelphia and New York have long done it. A major cause of the industrial growth of New York is the wide dispersal of its local freight delivery points. Of all railroads, only the New York Central reaches Manhattan with rails over which freight may be moved. The Central has a freight line crossing the

[1] See Plan G, page 331.

[2] Equivalent to inward and outward freight stations on land, each with four rows of 12 cars each spotted alongside.

Harlem River at Spuyten Duyvil and running down almost the entire length of the West Side (Hudson River) waterfront—through the congested district the rails are on West Street itself—to St. John's Park, in the heart of the business city. All the other roads terminate in Jersey City except the New Haven, which ends in the Bronx, across the Harlem River from Manhattan. Yet all these other roads need stations in Manhattan and Brooklyn, both on islands. They get their Manhattan stations in the manner described: by floating to pier stations.[1]

Dispersed New York facilities. Each road has frequent stations in Manhattan, on both the North and East Rivers. A shipper located anywhere near the waterfront in either Manhattan or Brooklyn need not dray his freight more than a short distance before he comes to a station of the road he chooses to ship by, whichever road it may be. The New Haven has pier stations scattered along the East River, to which it floats its freight in cars. The New Haven reaches the West Side waterfront by unloading its New England freight at the Sound ports and floating it in its Sound Line boats to the various pier locations along the West Side which are occupied by these lines. Without such a distribution of freight facilities greater New York could never have grown.

New York transfer stations. There is a disadvantage of such dispersed terminals compared—for instance—with the concentrated freight houses of the

[1] In Brooklyn, where land is cheaper, the cars are pulled off on the land and loaded, at the Bush Terminal, Brooklyn Eastern District Terminal, Jay Street Terminal, Baltic Terminal, Atlantic Basin Terminal. These Brooklyn terminals are used jointly by all roads, but each has its separate pier stations in Manhattan.

New Haven at South Boston, where all outward Boston freight is loaded. Because shippers are made to bring all their freight to South Boston, more direct through cars can be loaded to New Haven destinations than if the freight were received at dispersed stations in various sections of Boston. This contingency is provided for in New York. It is true that there are East Side pier stations of the Pennsylvania that cannot load a daily car for Scranton. But this does not result in forcing the East Side shipper to dray his freight all the way to the large West Side pier stations where daily direct Scranton cars are made. On every day when the East Side station has not the carload minimum for a Scranton car, it loads Scranton freight into a car for Waverly Transfer, the Pennsylvania transfer station inland from the Jersey waterfront. In this Waverly car or cars goes also all other freight to destinations for which through cars cannot be made. Similarly, all other pier stations, and the Brooklyn terminals, load into Waverly Transfer cars all their L.C.L. freight for "less-than-car" destinations. By 5.30 all these cars are floating to New Jersey; within an hour or two they are alongside the transfer platforms at Waverly, operated in a way similar to that described for the proposed Boston Union Lighterage Station. All the smaller pier stations and terminals jointly have supplied enough Scranton freight for a car or, more likely, several cars. By midnight the East Side shipper's freight is in a Scranton car, which is in the Scranton freight house next morning.

Philadelphia transfer stations. Philadelphia does the same thing. The Reading, in addition to having pier stations on the waterfront, has land stations

scattered all over Philadelphia. Pier stations and land stations load through cars whenever possible; other freight is loaded in cars to Wayne Junction Transfer, in the suburbs of Philadelphia. Here freight, loaded at all the smaller stations up to evening, is by midnight consolidated into through destination cars and sent on its way. The Pennsylvania in Philadelphia does precisely the same. Its transfer station in the suburbs is Mantua Transfer. These Philadelphia roads could have remained satisfied with their land stations, which, as in Boston, are on the fringes, not at the center of the business city, older than railroads and, when they are built, already closed to them. The Reading and the Pennsylvania could have forced interior shippers to dray to their outlying freight stations. Instead, each of them saw where the freight center was, along the old waterfront, and utilized carfloats and piers to establish local stations in that center. The New York Central, at New York, might have remained satisfied with its single freight terminal at St. John's Park. Instead, it ran cars on floats at 60th Street and floated them to pier stations along the whole lower West Side and East Side waterfronts.

Boston needs no transfer for Atlantic Avenue freight. Eventually, Boston can have as wide a dispersal of freight facilities as Philadelphia or New York. A float bridge puts each road upon the carfloat belt which reaches wherever there is water. Greater Boston is exceptionally favored in its large contact with the water. The railroad on the carfloat belt can have a local station wherever it can build or lease a pier. There is no reason why the New Haven should not have a station in Cambridge and Everett, the Boston & Maine one in Fort Point Channel or Quincy.

Until the Boston roads provide themselves with Boston transfer stations, these outlying stations are not likely to be established, for the reason that they could load few direct cars, and there is no Boston Transfer to which to load them.[1] But this is no reason for not establishing the Atlantic Avenue pier stations. The Atlantic Avenue district will supply freight to load so many direct cars that few shipments will need be drayed to Kneeland Street, South Boston, or Rutherford Avenue, in order to get into a through car.

In no way, so cheaply as in the manner proposed, can the Boston roads largely expand their local delivery facilities, in any situation accessible to shippers.

Harbor is a belt line. The carfloats are the trains, a tug handles two of them (24 cars) at once. The tug is the switching engine. The harbor is the belt line. The pier is the local station. The carfloat in the slip represents the tracks alongside. There is no cost of construction, no maintenance, rentals or taxes on the belt line. The pier and the slip can be rented from the State, at a price for which corresponding facilities on the land, in the same district, could not possibly be maintained. The belt line has an indefinite capacity.

Cheapness of floating operations. Operation of this belt line is cheap. Suppose that the waters surrounding New York were filled in. Then suppose that each railroad now terminating in Jersey City or the Bronx were to build on the land, so created, tracks reaching each of its present pier stations. The road-

[1] The transfer stations already mentioned, such as Ayer, Lawrence, Mansfield, etc., are all on separate divisions of the Boston & Maine and New Haven. What is needed is a transfer at a point before the divisions diverge from Boston.

beds of these connecting tracks would be subject to heavy annual charges for interest, maintenance and taxes. These fixed charges would be so great that they would outweigh any problematical saving in operation brought about by delivering the cars all-rail instead of by float. The result would undoubtedly be that it would be far more expensive to deliver Manhattan freight, per ton, than at present. The criticism of New York terminal operations is by those who do not know New York. No city which has water should fail to study these New York local facilities and operations.

Summary. Certain new constructions and certain changes in procedure have been proposed for the purpose of improving the conditions of Operation in the port of Boston. By Operation is meant the process of interchanging traffic between rail and water carriers. The changes proposed may be summarized as follows:

It proves impracticable and undesirable to build a new belt line around Boston for the purpose of co-ordinating all rail carriers with all pier groups, or providing for interchange of cars between different rail carriers. The advantages of such a belt line can be had by the institution of two carfloating routes: one between South Boston and East Boston, one between South Boston and Charlestown.

The Port Directors should construct a large modern float bridge at Charlestown, one at East Boston, two at South Boston. They should construct at least six large transfer carfloats. These float bridges and carfloats should be leased jointly to the Boston & Maine, Boston & Albany and New Haven railroads, who would operate them. The transfer carfloat routes thus established would serve as a water belt line pro-

viding for carload railroad interchange between Boston & Maine and New Haven; between the rails of the New Haven and Charlestown piers or East Boston piers; between the South Boston piers and Boston & Maine or Boston & Albany rails. The floats and bridges would be leased upon a self-supporting basis.

The carfloat routes would bring the Boston & Maine and Boston & Albany into South Boston, where a great industrial district would be created upon the Commonwealth's land there. Commonwealth trackage in South Boston, as well as the tracks to Commonwealth Pier No. 4, future Commonwealth Piers at South Boston, and the new Fish Pier, should be leased to the three roads jointly and operated as a joint terminal of all three roads. To the Boston & Maine and Boston & Albany should be leased land for the construction of local freight stations in South Boston. These stations should also be constructed according to the designs of the railroads, and leased to the roads. South Boston trackage and facilities should be leased upon a self-supporting basis. The industrial development of the State's 140 acres of land at South Boston would probably supply an annual revenue that would make all activities of the Port Directors self-supporting for the future.

It appeared not impossible that the Port Directors could acquire the entire waterfront and operate it upon a self-supporting basis, the railroads continuing their present practice of paying for the maintenance of oversea terminals. The expenditure for the acquisition, however, would be very large and State operation upon an unprecedented scale would be entailed. It seemed preferable first to attempt to attain a satis-

factory terminal situation under present conditions of dispersed waterfront ownership.

An effort should be made to have the location of the new Boston Immigration Station settled on the second floor of Commonwealth Pier. The convenience of this location and the economies it offers to both the Federal Government and the State, all speak for the plan.

It appears not impracticable to make of Commonwealth Pier a joint landing stage for the passengers of all classes of all steamers. Besides preventing further duplication of the passenger-handling facilities of the port, this measure would make possible a development of train service, connecting with steamers, for western passengers using Boston.

The Port Directors should acquire 1,400 feet of water frontage on Atlantic Avenue, the area from Long to Lewis Wharf inclusive. The present disorderly wharf system, the product of historical conditions and of an industrial and commercial use of the waterfront, should be cleared away, and four modern 1,000-foot piers should be built. These 1,000-foot piers would require an extension of the present pier head line. The new piers would each be an entire terminal and would accommodate enough shipping to make it self-supporting in spite of the high cost of acquiring this Atlantic Avenue waterfront. It is proposed to locate upon the new piers a large portion of the major Boston coastwise lines; also to establish, upon the northernmost pier, local freight stations for the Boston & Albany and New Haven; upon the south half of the southernmost pier a local freight station for the Boston & Maine. The new wide piers for coastwise lines would greatly facilitate their operations in the handling of local freight.

For through freight transferred between coastwise and rail carriers it is proposed to abolish the use of the Union Freight, which would disappear from coastwise piers. All package freight so interchanged would be carried in Boston Lighterage cars, one of which would run between each important local station on a New England railroad and a Union Lighterage Station, to be built by the Port Directors at South Boston, where all the railroads would have been brought together. The Port Directors should supply the equipment for lightering this package freight between coastwise vessels and the Union Lighterage Station. This equipment, however, would be operated by a Union Lighterage Company, in which all coastwise lines would be invited to join. Great savings in the cost of this transfer will be effected by taking it from 1-ton units and giving it to 200-ton units.

It is proposed to carry on this transfer of package freight for a uniform charge of 60¢ per ton. Of this 60¢, 25¢ would be allowed the railroads for handling freight between lighter and car; 20¢ would provide for operation and interest on the lighters; 15¢ would be applied to interest on the Lighterage Station. With the co-operation of the Boston railroads it is probable that these installations and operations can be made self-supporting from the start. Coarse freight is similarly to be transferred exclusively by lighter. A coarse freight lighterage terminal would be built for the New Haven at South Boston, adjacent to the Union Lighterage Station; also such a terminal for the Boston & Albany and Boston & Maine, if they desired one. Otherwise, they would undertake the handling of the coarse freight at their own terminals at

Charlestown and East Boston, as they do in some degree at present.

The railroad pier stations, to be established at the north and south extremities of the new Atlantic Avenue pier group, would, to the shippers' great advantage, relieve the present rigid system of local deliveries in Boston. The stations would also put each railroad into the most valuable traffic territory of the city, and put each into a locality where, on competitive freight, it is now at a disadvantage.

There are several reasons why the Port Directors should carry out the works here proposed. They alone have the right of condemning private property for the construction of such works. The changes to be made, particularly the reorganization of the Atlantic Avenue waterfront, are of a magnitude which only a public body could undertake. A glance at the map (Plan D) shows that the Atlantic Avenue pier group must be built as a whole. The expenditures proposed in behalf of the railroads, to be put upon a self-carrying basis, are also justified. For various reasons New England railroads are now in a position where they are unable to make further capital expenditures except at great sacrifice. They are able to pay a low rate of interest on such expenditures made for them by the State,—to pay for them out of the savings that can be made by the use of new methods which these State expenditures make possible. The State lends its credit to the New England railroads, at a time when their credit has been heavily impaired, in order to relieve congestion in the operations of these roads at their eastern terminal. It is no time to call on the railroads to make sacrifices; it is a time to make properly safeguarded sacrifices for them.

This class of State investment is very different from that in which the Port Directors have heretofore been engaged. They have been engaged in providing facilities for transatlantic steamers which largely serve a highly competitive hinterland in the West. These steamers could dock elsewhere; for instance, at Baltimore or Philadelphia or Newport News. The railroads of these ports, followed by the Boston roads, have pushed the competition for these oversea lines to the extent of giving them free dockage. The Port Directors can of course charge the oversea steamship lines no more than this competitive dockage rate; namely, nothing at all. But the Boston railroad and coastwise lines must come here; they cannot be accommodated at Baltimore or Philadelphia. They are accustomed, and willing, to pay for what they use. And they are the necessities of Boston's commercial life, quite as important to care for as its comforts and luxuries, which the oversea lines fairly represent.

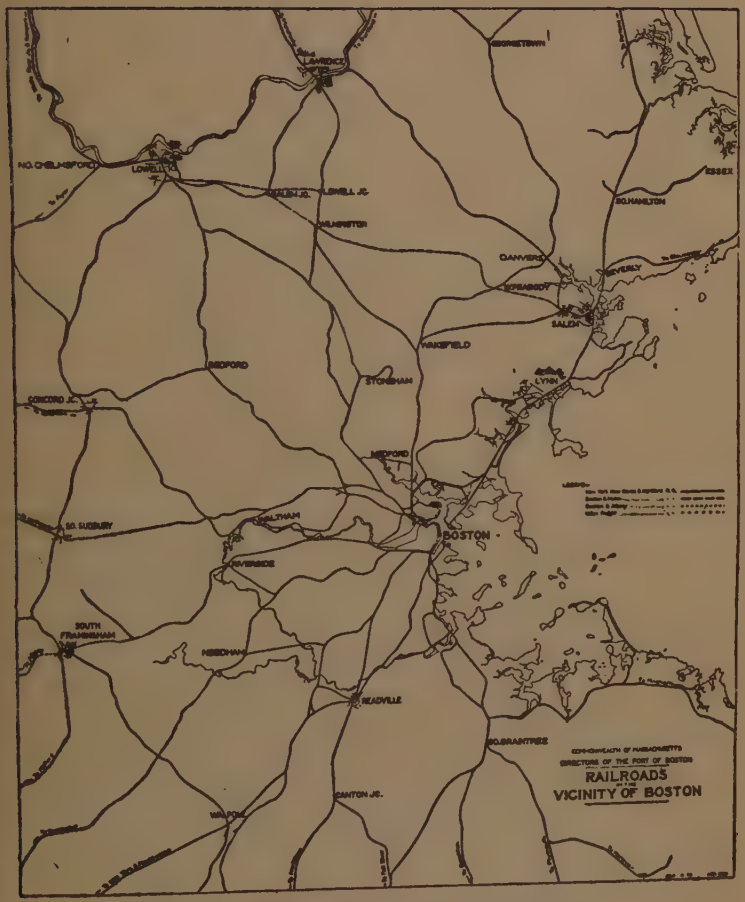
The changes proposed, notably the reorganization of the Atlantic Avenue waterfront, will disturb certain established localities and methods of doing business. That is true of any change brought about in an old, built-up section of the city. It is the price of progress. It is not uninstructive to examine what heroic measures other great seaports have taken when they have seen conditions of congestion arise which have threatened future growth. Many examples might be taken; for instance, the example of London, whose newly constituted Port Authority has spent over £25,000,000 to acquire and develop the properties of moribund private dock companies, who were holding back the progress of the port. Hamburg furnishes perhaps the best illustration for Boston's purpose.

In 1882 the State of Hamburg was persuaded to enter the German Customs Union. The State, a little larger than the city of Hamburg, had at the time 275,000 inhabitants. Its population had overflowed from the city's original site on the right bank of the Elbe, and extended to the large Kehrwieder Island and to the left bank of the river. It was seen that it would be impossible to provide on the right bank of the river for the new pier facilities which would be required to handle the growth of business which would come to the port in connection with the industrial development of the German Empire and Hamburg's entrance into its customs system. The residential and industrial occupation of the island of Kehrwieder stood in the way of the building of a Free Port on the island, and on the west bank of the river, the Free Port to provide for the expansion desired. Population was cleared off Kehrwieder and the west bank. One thousand property owners were expropriated and 24,000 persons made homeless. The State expenditures on the construction of the port amounted to over $35,000,000 in twenty years. The result is the port of Hamburg as travelers see it today. This sacrifice was made by a community of 275,000 people and made without prospect of direct financial return. In fact, the harbor expenditures in Hamburg have never been self-carrying. On Atlantic Avenue the new piers will become from the first self-supporting, or nearly so.

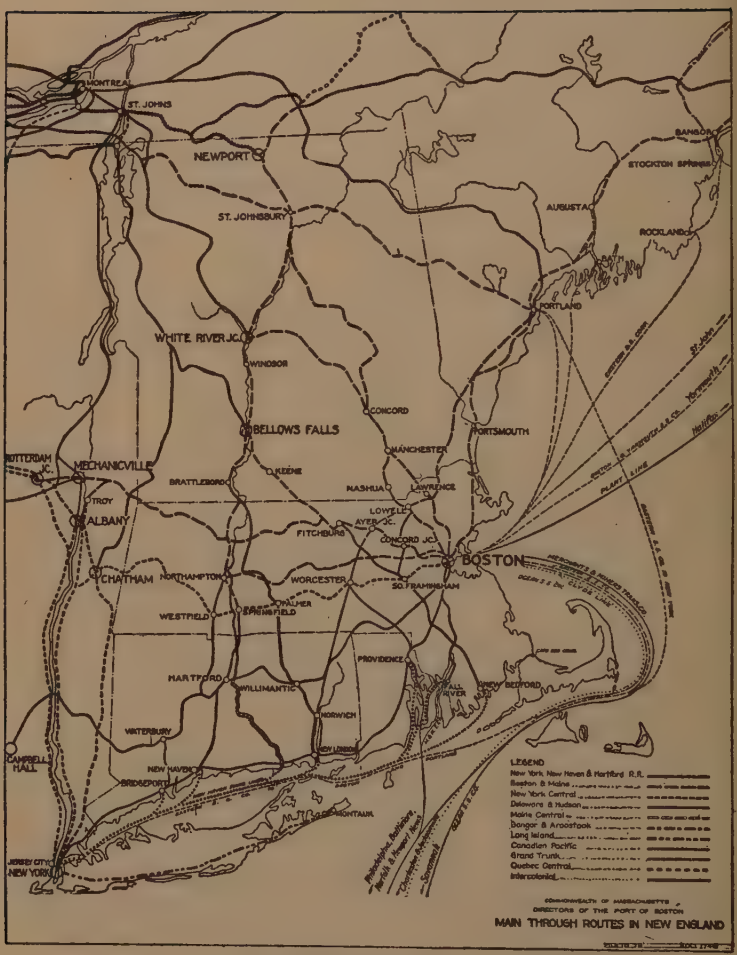
Or take a case nearer home. For years Baltimore looked helplessly upon a utilization of its Pratt Street coastwise waterfront, comparable with the present condition of ours along Atlantic Avenue. No one could see what to do. In 1904 a fire cleaned out the whole section. Baltimore then purchased this water-

front, widened the marginal street and constructed a row of piers which it leases to such coastwise or nearby-oversea traders as the Merchants & Miners and the United Fruit, which in Boston are condemned to the use of such casual bits of water frontage as commercial and industrial enterprises have not appropriated for themselves. There is no doubt that Boston would do the same as Baltimore if a fire were to clean out the Boston coastwise water frontage. But, with coastwise companies eager for better accommodations, and willing to pay a reasonable price therefor, it ought not to be necessary to wait for a fire to bring about a reorganization so necessary as this one.

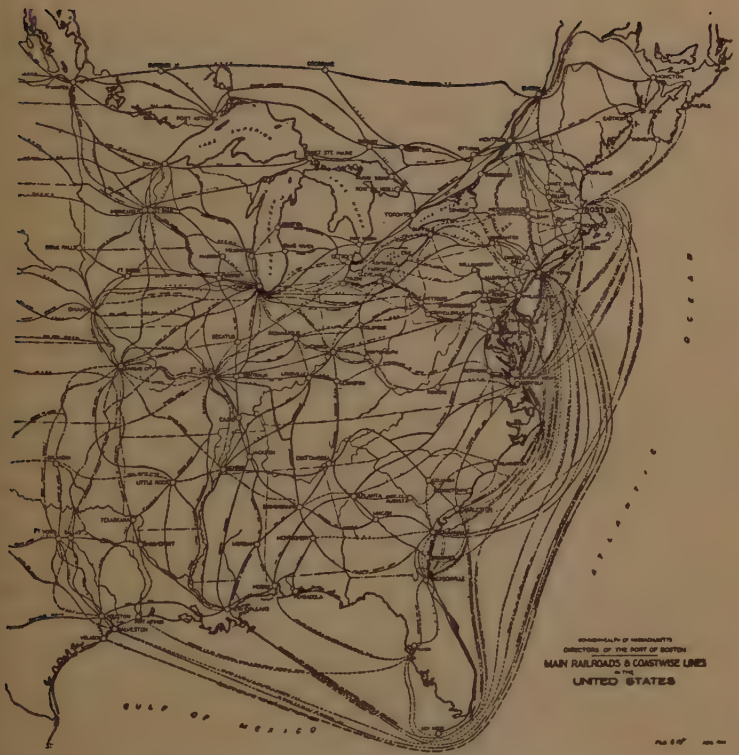
At the present time there is no one thing the trouble with Operation in the port of Boston. There are a number of things the trouble, each one small in itself, but collectively forming a serious obstruction to the flow of traffic through this channel. The proposals already made are designed to remove these obstructions, so far as they consist of physical layouts or methods. So far as the obstructions consist of such charges for port operation as reciprocal switching rates between railroads, they were the subject of the first Section of this book.



Map I. The Boston Railroad Situation



Map II. New England Railroad Situation



Map III. Transportation Situation of the Eastern United States

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